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MINIMUM WAGES FOR WOMEN

SUMMARY

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MUCH as has been said of late about minimum wages for women, the questions raised have been dealt with but rarely in the light of economic theory. Economists seem to have been wary of applying to this concrete problem the general reasoning which figures so much in the treatises. A reluctance of the same sort is observable in their treatment of other current questions. What is the influence of immigration on the general rate of wages? What has economics to offer on the controversy between closed shop and open shop? What is the effect of a protective tariff on the rates of wages? The answers to such questions should at the least be made easier by economic theory; indeed, to aid in answering

them would seem the ultimate object of theory. Yet the economists have contributed much more to the accumulation of facts, the ascertainment of details, than to the elucidation of the broad general problems. Perhaps this restraint has been due to a consciousness that we are not sure of our ground. Economic theory is in a process of readjustment; our current formulas must be regarded as provisional; some at least among the next generation are likely to see new light in many directions. The egregious errors of which the economists of the first half of the nineteenth century were guilty when they applied off-hand the theories of their day, impose caution. But there is no more searching way of testing the generalizations of our own time than the attempt to apply them, perhaps to use them as the basis of prophecy. And if in the course of such applications our theories prove bad or useless, the sooner we find it out the better.

In the following pages I shall endeavor to consider the legislative measures for regulating women's wages in the light of some generally accepted economic principles. At the very outset let it be noted that the problem is in essential respects different for women's wages from what it is for men's wages. About minimum wages for men nothing will here be said. And as regards women, the wages of the lowest group only need be considered at this stage of American discussion and legislation. A wider application of the minimum wages principle is of course possible — to the establishment of a series of minima, for men and for women, and varying for the several grades of labor. But it is to a single minimum, designed to be effective for the lowest-paid grade of women's labor only, that legislation is directed in the United States; and the present paper will be restricted to this sort of regulation.

The broad facts are sufficiently known. They have been admirably set forth in compact form by Professor C. E. Persons in an article recently published in these columns.[1] Let me summarily recapitulate them. The number of women and girls employed in factories and shops is growing fast. It is growing particularly fast in the occupations classed by the census under the head of "trade and transportation," among which shops hold the first place for women. Both in the factories and shops the great majority of the women are young. Of all the women employed, at least half are between the ages of 16 and 25; among those who work in factories and shops, the proportion of young women is even greater. It follows that they are a shifting class, industrial birds of passage. One set enters the shops and factories and remains there a year or two, at most a few years. Its members marry, and are succeeded by a new set. Tho there are some older women in the group here under review — the lowest-paid group — it is made up chiefly of the young. And from their youth and the temporary nature of their work it follows that in the main they are unskilled or inexperienced; or, if skilled and experienced, only in such tasks as can be easily learned.

Again, the majority of these girls and women live at home. They are ordinarily members of a family group which makes common cause in domestic life. As Professor Persons sums up the outcome of his wide-ranging research: "It boots little to multiply illustrations. . . . The typical female workers are the eighty per cent living at home and contributing the larger part of their earnings to the family treasury. Twenty per cent of the girls at most are independent workers."

[1] "Women's Work and Wages in the United States," in this Journal, vol. xxix, p. 201 (Feb., 1915).

Finally, current wages are low, and are usually less than is reckoned necessary for the support of a woman living alone. As a rough generalization, it may be said that the wages of the young women who constitute the bulk of those employed in factories and shops range about $6.00 a week. Investigations by various commissions lead to the conclusion that the minimum on which a woman dependent on herself can meet "the necessary cost of proper living" (some such phrase appears in the various statutes) is at the least $8.00 a week. The usual wages of the great majority of women employed are less than this minimum.

Here is presented the first general question: are not the industries which employ these women to be deemed "parasitic"? Is it not clear that the women who receive but $6.00 a week, and need $8.00 for self-support, must have the difference made up somehow? The industries which employ them seem not to pay their way, and the consumers who buy the products do not recoup the full expenses of production. Is not the difference necessarily made up from some other source — by parents, by charities, perhaps by prostitution? This, as is familiar enough, is the ground most frequently urged for fixing minimum wages for women. Such legislation, it is maintained, recognizes an undeniable fact; it puts an end to a clear case of economic parasitism.

This version of the case has been stated so frequently and by such careful thinkers, and has been so little questioned — not directly questioned at all, so far as I know — that one must hesitate to take issue with it. And yet it seems more than questionable. It is not clear beyond peradventure that the case is one of parasitic industries; nor must the minimum needed for the support of the independent woman necessarily serve as the basis for legislative regulation.

By a " parasitic " industry is meant, I take it, one which necessarily entails some aid and payment from an extraneous source. The typical cases are those of industries employing adults who receive literally less than the bare physical minimum of subsistence. Such cases have been brought to our attention by Mr. Rowntree and others, in inquiries on the wages of British laborers of the lowest grade. Similar cases are to be found on the Continent, especially when the handicraft labor of former days is in process of being displaced by machine industry, the handicraftsmen clinging desperately and hopelessly to the ancient ways. Directly or indirectly the deficiency below the minimum of subsistence has to be made up from some source or other: through public or private charity, through higher taxes or larger doles. The consumer does not pay enough to support the poor creatures, and the general public, since it will not suffer them to starve, must in some way or other make up the difference.

It is not necessary here to consider the question in its larger aspects. The phrase, invented by the Webbs, is in danger of being overworked. The extent of strict parasitism is probably exaggerated. The human frame can endure most wretched conditions; the race can propagate and maintain its numbers on very low terms. Wages that we figure to be below the barest minimum prove not to be so. Reference to parasitic trades occasionally gives an appearance of calculating economy and of cool rationality to proposals which really rest on something better and are to be justified on higher grounds — sympathy with suffering and a will to put an end to it. But this is by the way: let it be assumed that there are in fact parasitic occupations in the sense indicated. Are the low wages of factory and shop women in this class ?

The grounds on which they are supposed to be parasitic have been stated often enough. Those who live alone, away from home or without any home, do not get enough for support, if they receive only such wages as the majority get. This "if" is to be noted; for it is quite possible that the independent women, a minority of the whole, are usually in the better-paid positions, and are in the main identical with the minority who receive as much as the minimum for independent living. But of this more in another connection. As regards the majority, who live at home, we are told that their case is in no essential different from what it would be if they lived independently. They do not get enough to support themselves. The difference between what they earn and what is needed for their support is made up by other members of the family, usually by their parents.[1]

The figures on which these statements rest are such as to arouse suspicion on their face. The minimum of subsistence is put at some such figure as $8.00. This, it is reckoned, the young woman *must* have, even tho she lives at home. Now, it seems clear that her mother needs no less: the mother must have as much as the

[1] I quote the following from the Fourth Report of the New York Factory Investigating Commission (1915). The italics are mine. Professor H. R. Seager: "These unfortunates are partly supported now *at the expense of others*. Other members of the family contribute something, charity contributes something, prostitution contributes something, and some are slowly losing vitality and such efficiency as they have left because they are constantly overworked and underpaid. The industries that employ them have been characterised accurately as parasitic industries. They do not pay their way, and consumers who get goods cheaper in consequence are living at the expense of the sweated workers or of those who supplement their earnings to save them from the disastrous consequences of earning less than suffices for decent living."

Again, the Massachusetts Wage Commission, in its Report on Recommendations of the Candy Makers' Wage Board, uses the following language (the italics again are mine): "In many instances their actual living expenses are partly supplied by their fathers or other working male members of their families; that is, the self-supporting industries in which the male members of the family are at work are paying the cost of living not only for their own workers, but are supplying the deficits in the wages of the female workers in other industries who happen to be in the families of their own employees. Certain industries, employing large numbers of women living at home, are thus in a manner dependent on other industries paying higher wages, and are enabled to keep their pay rolls small because *the actual costs of conducting business are partially paid by other concerns*."

daughter for food, clothing, shelter, incidentals. And the father surely needs quite as much. For the three, then, we have $24.00 a week as the minimum of subsistence. If the family consists of more than three, a still larger sum is the minimum. But any such figure is surely untenable, regarded as indicating what is absolutely needed for "decent subsistence." An income of $24.00 a week means, for a working-class family, not only ample subsistence, but envied comfort. To say that the girl who is a member of such a family must have $8.00 a week for bare subsistence is tantamount to saying that the family needs at least $24.00 a week; whereas this sum is obviously much above the most liberally-calculated minimum. An income of $15.00 a week has been set down in recent discussions as the sufficient minimum for the decent support of a family consisting of father, mother, and three children under fourteen.[1] This is a larger sum than is ordinarily got by the unskilled laborer or factory worker. An income of $600.00 a year, or $12.00 a week, is in fact as much as such a family can count on. But let the higher sum be taken for the purpose of the present simple reasoning. The family may be regarded as the equivalent of at least three adults — the three young children being counted as one adult. This means $5.00 per adult. How can it be said, then, that the irreducible minimum for any *one* adult is as much as $8.00 ?

Consider the situation from another point of view. Suppose that into the budget of a family whose head

[1] The family minimum depends of course on the make-up of the family; there is artificiality in the figures given for a "normal" family's minimum. Needs vary at different stages. The young workman, just married, gets on comfortably at the wages current. During later years, when children are half-grown there is the most trying stage. Still later, when the children begin to earn something, their earnings serve to ease the situation. A girl of sixteen who has sisters and brothers still younger, and who gets $6.00 a week, contributes to the family more than her separate "keep"; and the inducement to push into employment the oldest child of such a family — girl or boy — is overpoweringly strong.

earns $12.00 or $15.00 a week, a girl brings an additional $6.00. In a working-class family the difference between $12.00 and $18.00 a week is great; it is the difference between having hardly any margin at all and something like ease. It means that the family is well above the poverty line. Is the girl who brings in $6.00 a parasite? Is she a drag or a prop? Or suppose that the young woman who has been bringing home $6.00 a week drops from the family — dies or marries. The specific expenses entailed by her presence cease; her specific contribution to the family income also ceases. Is the family better off or worse? Neither parent would hesitate for a moment from answering that the family had lost, not gained. Can it be maintained that the young woman is a parasite?

The view that any wages for women below the sum usually figured as necessary for sole support — $8.00 a week or thereabouts — are "parasitic," seems to me misleading as regards the home-dwellers; that is, as regards the overwhelming majority, the dominant constituency. It is possible that even as regards the minority of lone and self-dependent women the current calculations are somewhat more liberal than is consistent with a strict minimum, or with the standards and ways of the class from which most women workers are recruited. Persons habituated to higher standards find it difficult to realize how bare are the absolute needs of those at the bottom; and the reckoning of a minimum of decent subsistence, when made by the more prosperous, may easily bring the total above the sum which the poor in fact find the minimum. But it is not chiefly on this score that the usual figures of minimum subsistence are to be corrected, or reinterpreted; this correction — if there be any — might not be serious. The main cause of the obvious discrepancy between the

minimum supposed to be applicable to all (home-dwellers included) and the smaller sum which in fact these home-dwellers and their families find a source of positive aid, is to be found in another direction. The calculation ignores the economy of family life. Three or five members of a family can subsist on an income which would not suffice if each were to lodge and feed separately. The family is the one permanently successful case of expense-reducing coöperation. The girl who earns $6.00 a week and brings home that sum as a contribution to the family earnings adds to the joint resources more than she adds to the joint expenses.

It is best, therefore, to set aside the explanation of woman's wages from "parasitism," and to consider the situation without regard to the implications of this phrase. That situation, as analyzed in the preceding paragraphs, suggests a different and more tenable line of explanation for the meager wages of these girls and women. The circumstance that they live at home contributes immensely to swell the *numbers* offering themselves in the labor market and affects immensely the wages which they get; and it also affects the industrial quality of their work. Here we have what is, from the point of view of economic theory, the crux of the situation.

There is, I suppose, no proposition so universally accepted in economics as that the remuneration of persons in any labor-group depends directly on the numbers in that group. It is greater if the numbers are small, less if they are large. We usually try to state the causal connection with more precision by saying that the reward in any group depends on marginal desirability, or marginal serviceability, or marginal productivity.

Often we use the general phrase marginal utility, applying the same terminology as in the theory of value at large. Since labor in the last analysis yields simply "services" or "desirabilities" or "gratifications," just as material commodities do, the same principle holds. Often, too, stress is laid on marginal "productivity"; and the working of marginal productivity is said to be the same for labor of any particular kind as it is for labor at large or for the general rate of wages. On this last-mentioned point I am disposed to make reservations. If there is a determination of the general or average rate of wages by the marginal productivity of labor as compared with that of capital, it is different in its mode of operation from the determination of the wages of a given class of labor by the marginal contribution of the class. But there is no need, for the purposes of the present discussion, to consider whether this method of reasoning admits of sweeping application. It suffices that the influence of an addition to the supply of a particular commodity or a particular kind of labor is agreed to be the same. As the total supply increases, the successive increments become less prized, the price at which they can be disposed of falls, and thus the price of each unit of the supply falls. The business world calls this the operation of "the law of supply and demand," or the determination of the price of a thing by what it is "worth in the market." And it is a part of the same doctrine, of course, that the marginal price is that at which the entire supply can be disposed of. Fix a higher price, and all can not be sold; some units of supply not saleable at the higher price will be pressed on the market, and will cause the price to fall. The marginal price alone clears the market.

Now the general economic presumption is that when a given price has come to rule in a market, it is the price

fixed by the conditions of that market. If the wages of a particular kind of labor are low, as in the case of unskilled men, the explanation presumably is that there are many of them and the marginal desirability of their labor is small. If the wages of unskilled women are even lower, presumably it is because the marginal desirability of their labor is still smaller. Economists have speculated what consequences would ensue if ordinary muscular labor were scarce — if only a select few could handle the pick and the shovel and the plow; how much their labor would be desired and how high would be their wages![1] And we might similarly make the hypothesis that but few women were in the labor market; then doubtless, it would appear that there were some tasks for which they were peculiarly fitted and peculiarly desirable; and the wages of the limited number would be comparatively high.

The number of women who offer their services in the market for the particular kind of labor we are here considering is large. Between the time when schooling ceases and the time when marriage ordinarily takes place there is a gap of some years. It may be disputable whether it is best that the women in this stage should so preponderantly seek work — on this, I shall say more presently. But seek it they do. They are not only numerous, they are also inexperienced; they offer unskilled labor; the marginal serviceability of their labor is low; and therefore their wages are low. *Prima facie* the explanation of their low wages is not in parasitism or in oppression, but in a simple economic situation. Whether it is unjust that their wages should be low, raises quite a different question; precisely as the question of justice in regard to the going rates for un-

[1] I would refer, e. g., to my Principles of Economics, chapter 51, § 7; vol. ii, p. 170.

skilled men's labor is different from that of its economic explanation.

It seems to follow, further, that to set a rate of wages higher than the going market rate, will not accomplish the object in view, or at least the main object desired — namely to bring up to the minimum *all* now employed at the lower rate. At higher wages not so many can find employment. And while the number demanded at these wages will be less, the number seeking employment is likely to be greater. Professor Persons has remarked [1] that a certain number of women who are not now tempted to offer their services in the market will be tempted by the better pay. With less numbers demanded and larger numbers offering, there will be a selection of the more desirable, a rejection of the less desirable, non-employment for a certain proportion. How large the proportion of unemployed will be, must depend on the conformation of the demand schedule; but unemployed there will be, and hence failure to accomplish the desired object. Such seems to be the first and simplest application of economic theory to the case.

There are, however, qualifications and questionings. As in every economic problem, and above all in labor problems, we must try to make our general reasoning complete as well as severe. In two directions qualifications or modifications need to be considered. First, this labor is in demand not by itself, but jointly with other labor; and second, it is peculiarly weak in bargaining power.

As is the case with almost every sort of labor, the conditions are those of joint demand. Few kinds of labor are demanded by themselves; servants' work and

[1] See the article already referred to, in this Journal, vol. xxix, p. 228.

analogous direct service are the most conspicuous examples. Almost every kind of labor given to fashioning or vending commodities is employed in connection with labor of other kinds. In the factory as well as in the shop the poorly-paid women are employed in conjunction with men of all grades of skill and with women of the better-paid grades. Sometimes, as in candy and brush factories, the women of the lower grades form a large part of the labor force; more often they form a small part. It follows that often, indeed usually, a change in the women's wages makes a relatively small change in the employer's total wages bill, and makes an even smaller change in his total expenses. The percentage of increase in total expenses due to a rise in women's wages to a minimum of $8.00 or $8.50 has been figured out for sundry operations. Often it is a small fraction; the employer can easily afford to pay; how can it be maintained that any economic "laws" stand in the way?

I am skeptical, none the less. The same reasoning would apply to any one of the numberless factors that bear on the total expenses of production. No change in any one item is likely to affect at once the selling price of a product; almost any added charge comes at the start out of the employers' profits, and does not cause him to diminish the scale of his operations, still less suspend them. The employer is the buffer; it is through him that the impact of the industrial forces is transmitted to the rest of the economic mechanism; the first effect is that he absorbs the shocks. All of which is familiar enough. Yet we may be confident also — tho this is less often insisted on — that any change, even a small one, *if it be regularly repeated*, has its influence on calculation and on outcome, and comes to have its effect on prices as well as on profits. In all discussion of

this kind, we must distinguish between long-run and short-run consequences; and it need not be said that those which ensue in the long run are the more important. Now a sustained prescribed increase in the wages of any class of labor acts like a permanent excise, or a continued rise in the price of materials. These changes also do not immediately influence prices; they also may form a more or less insignificant fraction in the total expenses of production; they too are absorbed for a while by one or another of the chain of middlemen. Yet no one would pretend that all of them or any one of them can be disregarded because the employer will simply pocket the loss.

Still another consideration leads to skepticism as regards the negligibility of the change. There is a large possibility of substituting other labor for that of the women. As in the case of a commodity, the resort to possible substitutes must be considered, as well as the demand schedule for the commodity by itself. Higher wages for the unskilled women are likely to lead to more or less replacement by men, skilled or unskilled. Like the factor considered in the preceding paragraph, this one exerts its full influence only in the course of time; nor is it possible to say how great the influence will be. It would seem tolerably certain that at sundry points in the line of "marginal" employment, the existing equilibrium will be upset and rearrangements made in the combinations of different sorts of labor.

At this point it will be appropriate to consider another turn which the discussion often takes; one which also is supposed to point to the conclusion that the advance of all women's wages to the proposed minimum will be inconsequential, or at least will have no consequences outside the particular industry or industries. It will simply lead, we are told, to greater

efficiency. Sometimes it is said that the employers will mend their ways and improve their processes; sometimes that the women themselves will become more efficient. Are there grounds of general reasoning or general experience for expecting results such as these?

The effect of legislative pressure (or other pressure) in inducing employers to adopt more efficient processes has been insisted on in various directions. A conspicuous recent illustration in this country is the contention that railways can meet heavy expenses or make up for low rates by bettering their transportation methods. Protected manufacturers, again, are often told that they can meet more severe foreign competition, resulting from lower tariff duties, by improving their processes or by better management. And so as regards minimum wages, whether for men or for women. Now in all these matters the presumption seems to be against the fulfilment of the optimistic expectations. Improvements in the arts come from the most various sources and in the most various ways. All sorts of possibilities are constantly being pressed on industrial managers. The inducement to secure an increase of profit or a lessening of loss is always keen — as keen, it would seem, as the range of intelligence and enterprise in the managing classes makes possible.

It is not to be denied that improvements are sometimes introduced under conditions of stress. The question is not whether this sometimes happens, but whether it usually and normally happens — whether there is a distinct tendency that heavier burdens will be more easily borne because of the concomitant development of greater strength. The proposition seems to me highly disputable. Perhaps there is a tendency to put into effect in hard times improvements *already known*, but neglected in the days of abundant profits.

On the other hand *the* stimulus to invention and progress is the prospect of making money and the sight of others making money. This is the case above all for those improvements in plant and machinery, involving heavy investment, which have been the most effective among the causes of material advancement. The problem is one of wide range; it raises far-reaching questions about the psychology of money-making and of invention; but surely it is the bait of profit rather than the threat of loss which has been the great motive factor in bringing about better plant, new machinery, more effective organization, increase in the productivity of industry.

A somewhat different contention on this score is that the employees themselves will become more efficient because of higher wages — stronger physically, more alert, perhaps more intelligent. Will this really occur? Needless to say, we must bear in mind here also the general situation, not individual cases. If a single factory or shop raises wages above the usual rate, it is likely to get the pick of the labor supply, and may find that the higher wages are so much offset by better work that they cause no loss, indeed prove to be a source of added gains. But *all* factories and shops cannot do this unless *all* employees become more efficient by virtue of getting higher pay. To say as much as this, is to hold the steam-engine theory of wages — to maintain that just as more power is got by putting more fuel under the boiler, more labor-power is got by putting more wages into human beings. Among theorists, the late Francis A. Walker was the first conspicuous proponent of the doctrine, which since his day has appeared sporadically in recent economic discussion. This much of truth there seems to be in it: better feeding sometimes causes men and women to be physi-

cally more robust; better training causes them to be more intelligent — if the training be really better; better conditions may cause them to be more alert and ambitious. These good effects *may* come from higher wages. Just how they come and how soon, and under what conditions, and with what certainty, cannot be said with any assurance. There is a complex of causes, a series of interactions, a difference between short-time and long-time effects. Much depends on the elimination of that portion among the workers — perhaps no small portion — who by nature or environment are incapable of responding to uplifting influences. Much depends on the intelligence with which the influences are guided — on the use of food and drink that are really nutritious, on education that is really helpful, on social conditions which in fact arouse alertness. As a general proposition, it would probably be nearest the truth to say that higher wages are ordinarily not the cause of greater effectiveness in industry, but its result; while yet it is true that under favoring conditions higher wages may also be *one* among causes of slowly-developing effectiveness. The influence of better pay on efficiency is neither certain or calculable; still less is it immediate.

In the main, we must face the probability that higher minimum wages for all the women affected will lead to readjustments extending beyond the industries themselves. They are not likely to be absorbed in the profits of employers simply because they constitute only one among the expenses of production. Neither are they likely to be offset by an increase in efficiency, certainly not by a corresponding and calculable increase. They seem likely to lead either to lessened profits or to higher prices of goods. Either consequence leads, again, to some curtailment in the scale of operations or

some employment of others to take the place of the women. Optimism about its making no difference after all should not blind us to these probabilities.

Turn now to another phase of the discussion. Are not the low wages of the women explicable simply on the ground that they are weak bargainers? Must not theories of marginal serviceability or vendibility be applied with extreme caution to such cases as these? Is there not mere exercise of power on the part of employers, to be counteracted by the exercise of power on the part of the state? In the books on economics we are constantly talking about the handicap placed on the workman by his lack of reserve funds, by his ignorance, by the perishability of labor, by the stress of need. Hence the occasion for labor organizations and labor legislation. Are not these considerations applicable with special force to the work and wages of women?

Beyond question the group of women receiving low wages are peculiarly weak in bargaining power. They are young, timid, ignorant; they are a shifting class; they are easily brow-beaten and bullied. Further, they are hampered as regards mobility. Since they usually live at home, they cannot seek work far from home, and are under pressure to accept whatever wages are offered on the spot.

General reasoning does not seem to be of much promise for questions of this sort. Such so-called "exceptions" or "qualifications" in the working of economic "laws" would appear to call for painstaking inquiry on the facts in each particular case, and for that sort of inquiry only. And yet there are some clues of a general character. Low wages, due to mere weakness in bargaining, may be expected to be accompanied

by other phenomena. One of these — perhaps the most significant — is unusual profit by the employer. If his gains — due allowance being made for risk, order of ability required, and so on — are not above the usual or competitive level, *he* cannot be said to take advantage of the employees' inability to bargain; he succumbs to the force of the market conditions. Low wages in that case are concomitant with low prices of the product; they are not a cause of "sweater's" profits. And low prices of the product are then the result of market conditions, of consumers' demand. If goods can be competitively sold only at a low price, the cause is that there are many of them as compared with consumers' estimates of their desirability; and then the explanation of low wages is to be found in that ultimate source already indicated — the marginal serviceability or vendibility of the particular kind of labor, and therefore in the *numbers* offering it in the market.

This sort of reasoning could be used with little hesitation if we had to deal with a simple case. If there were one kind of labor turning out one kind of product; if we found, for example, that women alone were employed in the making of candy; and if we found, further, that the employers took no more than the competitive capitalists' toll on the goods passing through their hands — then we should not hesitate to say that if low wages are paid to the women, they must be due to the low price at which the goods were sold, not to oppressive exercise of bargaining strength by the employers. The actual cases are, as I have already explained, highly complex. The women are employed in conjunction with all sorts of other workers, and their wages are but one link in the whole chain of expenses of production. In the constant irregularities of prices and profits, in the

partition of successive stages of industry between different groups of producers, there is room for bargaining power of which the consequences are not easily traced.

There is not, so far as I know, any body of evidence to show that profits in all or most of the industries which employ a considerable proportion of women are unusually high. It is often enough contended, indeed, that the profits are such that the proposed increase in wages can be afforded, or would make little difference. But this is not the same as to say that the existing scale leads in the majority of cases to profits exceptionally high. It is probable that exceptional gains from low wages of women do come under some circumstances; for instance, when an industry first betakes itself to a district where this sort of unskilled labor is abundant. Thus silk mills, in which light machinery almost automatic in operation has been introduced of late years, have moved to the anthracite district of Pennsylvania, and have employed with profit the grown and half-grown children of the miners. Candy-makers have similarly planted themselves in the heart of city factory districts. Those who took the first steps in such utilization of labor supplies very likely "exploited" them also; paid low wages and made high profits. Like other changes in the localization of industry, they would feel the levelling influences of competition only after the lapse of a considerable time. Yet transitional conditions of this sort are not the typical ones. Women's low wages are found for long periods in all sorts of places and in all sorts of industries; in cities and in regions where they have been employed for generations, in old industries as well as new. There is no evidence indicating that unusual profits have been reaped thereby over a wide range of industries. So far as this sort of evidence goes,

there is little to suggest that the low wages have been caused merely by bullying.

There is still another direction in which we may look for evidence of exploitation. If there are particularly low wages in one establishment among others of the same kind, or in a few among a considerable number, there is ground for suspecting that a "fair" market rate has been depressed by taking advantage of weakness. Cases of this sort were found in the investigations of the Massachusetts Commission on Minimum Wages, and in those of the New York Factory Investigating Commission. Variations from region to region (not from establishment to establishment) may constitute evidence of the same sort; here, however, to be used with caution, since local variations of wages are common, and are usually due to other causes than mere exercise of bargaining advantage. Standardization and a common rule would seem to be peculiarly called for; and it is somewhat surprising that comparatively little has been made of circumstances of this sort toward strengthening the arguments for legally-enforced minimum wages.

On the whole, the general indications do not lead me to believe that the factor here under consideration — weak bargaining power — is the chief one to bring about the low wages of women. No doubt it intensifies the situation. It stands in the way of organization, of mobility, of a holding to the market rate, of response by actual wages to conditions tending to raise the "current" market rate. It causes much to depend on the temper and character of the individual employer, especially as regards matters accessory to the main wages bargain, such as overtime payments, penalties and fines, charges for materials and for breakage. But the great outstanding fact in the situation — the low rate

of wages which is found year after year over a wide range of industries in all parts of the country — would seem to be explicable only on other and broader grounds.

The fundamental cause, we are forced to believe, is in the *numbers* of those seeking employment. And these numbers are part of the mass of unskilled workers whose pressure for employment so profoundly influences our industrial and social conditions in every direction. The low wages of factory women are indissolubly associated with the problems of immigration. The constant recruiting of the rank and file of unskilled workers by the inflowing army of immigrants keeps wages in this bottom range peculiarly low in the United States. Tho wages are higher than for the same class in the countries whence the immigrants come, they are low relatively to the general American scale of income and prosperity. It has often been remarked that the gap between the wages of skilled and unskilled labor is, in the United States, greater than elsewhere — greater than in old countries like England and Germany, greater than in Australia, a new country whose conditions are not unlike our own. Relatively, the American day laborer and factory hand is not so well-paid as the skilled mechanic or the farmer. And the explanation is that the continued immigration of vast numbers has kept the bottom wages group full and over-full. I will not undertake here to consider whether the average rate for all American laborers of every kind (including farmers) has been lowered or raised in consequence of immigration — whether the total national dividend per worker has become smaller or larger. That difficult question, as I noted at the outset, has been argued by the economists as sparingly as other general questions on which theory might be expected to facilitate the

answer. But as regards the wages of the particular class here under discussion — the ordinary unskilled manual workmen — the influence of immigration seems beyond dispute. Every one knows that throughout the manufacturing and urban districts most of these are immigrants, and the rest mainly the children of immigrants; and that the immigrant population sets the wages standards for the entire group. It is their large numbers and the constant recruiting of their numbers that cause wages to be as low as they are.

And it is their daughters who constitute the great army of women workers competing for employment in factories and shops. The wages which the parents get attract them in great numbers to the United States; the wages which the young women get attract them in great numbers to the shops and factories. The multitude which thus bids for employment in the entire field brings about current rates of remuneration which serve on the whole to "clear the market." Rates distinctly higher would cause more applicants to offer their services, and would cause less to be employed. The economic theory of the case is simple: the only effective remedy for the low wages of a particular class of workers is a decline in the numbers offering themselves for the particular sort of employment.

When it is said that higher rates of wages would cause less to be employed — that the demand, *i. e.*, the number demanded, would be less at a higher rate than at a lower — the proposition must be taken in the same sense and with the same qualifications as in the case of a commodity. Much depends on the closeness of the connection with the consumers. A rise in the price of sugar, for example, has its effect in reducing the quantity demanded with promptness and almost with cal-

culable extent. Similarly, a rise in the wages of domestic servants — an increase, say by legal requirement, of 25 per cent over the rates now current — would lessen the number employed with promptness, and, I should suppose, to a considerable extent. A rise in the price of wool, on the other hand, would be transmitted to consumers through the cloth manufacturers, and the clothing makers, and the wholesale and retail dealers; the effect would be slow in reaching consumers, and might be obscured because of the simultaneous influence of other changes; it would probably be complicated by some resort to substitutes for wool. In the same way, a rise in the wages of women in paper box factories would also have to reach consumers through the effect first on the box manufacturers, and then on the other producers and merchants who are the first purchasers of the boxes; and it too would be complicated by the possible substitution of other workers for women and by that of other wrappings in place of boxes. The essential question is about the slow-working influence of continuing pressure. As regards both the wages of women and the prices of boxes, we must consider the consequences not of a sporadic change here and there, but of one affecting all enterprises throughout the country. What would happen if legislation should try to apply to the wages of *all* women a minimum of say $8.00 a week — the sort of standard rate that is commonly proposed?

The answer to this question on general reasoning would seem clearly to be that not all the women would continue to be employed. The numbers offering their services in the market would rise; it is a peculiarly elastic kind of labor supply. On the other hand, the number demanded in industry at the higher rate would be less. The more efficient (or more tractable) would be culled out and first employed. Others, of the common

run, would be retained in certain operations for which they were serviceable and profitable even at the higher rate. But there would be a residuum — how large a proportion, it is impossible to say, but doubtless considerable — not employed at all.

But here still another question presents itself. Perhaps it is *desirable* that a certain number — conceivably a large number — should be thrust out of employment. Those so affected would be the less efficient and less serviceable. One of the outstanding aspects of the situation is the large number of young women who work fitfully and sporadically, drifting from job to job. They have no training, no vocational skill, no ambition. They earn something during the busy season, and do little or nothing at the slack periods. Their presence and their availability during the busy times tend to accentuate the irregularity of industry. Hence the suggestion that they be deliberately kept out of the working ranks. This could be accomplished by two measures — first, raising the age at which employment shall be permitted, say from sixteen years to eighteen; and second, forbidding absolutely any employment at less than the "living" wage and thus automatically shutting out those not employable at that rate. To such a policy there would admittedly have to be added something more: provision for the further and better education of this class, not only for higher culture, but for industrial and domestic work.

The program is attractive; it cannot but command sympathy. But the difficulties in the way must not be underrated. An effective remodeling of the educational system of a community is a most difficult thing to bring about — not only difficult to plan and provide, but difficult to fit into the wishes, the habits, and not least

the needs of the backward constituency. Such a readjustment as is contemplated means a great extension of secondary education, a complete overhauling of its content, an immense increase in the number of pupils. It means further that the period during which the young women must be supported by their parents is lengthened, and lengthened too at the time when the separable expenses of maintaining them have reached the maximum. The economic strain must be great so long as the current wages of men (heads of families) remain at their present level. It would be necessary to reckon with the pressure to reach the stage of earning something, the temptation to evasion, the unpopularity even of well-devised uplift education — not to mention the inadequacy of the traditional ways of secondary schools, so tenaciously clung to by the teaching profession and the school authorities. The road to be traveled is a long one, and for a considerable time the situation must be dealt with as it is, not as we wish that it may come to be in the future.

A further difficult question remains. Assume that the fitful, untrained, indifferent women are got rid of; that all who offer themselves for work at the age of (say) eighteen years have had an industrially helpful education; assume that all the workers in the market are in this sense efficient — will all of them then be able to get distinctly higher wages than are now current? Perhaps; but not certainly. General economic reasoning would suggest that wages depend not on personal efficiency, but on the numbers possessing the efficiency — that is, on *marginal* effectiveness or serviceability. Double the numbers of a group of workers having a given training, and their wages will go down even tho their training has been excellent. The net usefulness or effectiveness of any one such worker becomes less. And

even if you maintain the numbers of a given group at the same figure, and improve the training and personal efficiency of all, their wages will not necessarily rise. To make effective the new potentialities, there must be different organization and different equipment — a response in the managerial situation. The whole problem of the relation between vocational training and individual skill on the one hand, and industrial output on the other, is a tangled and troublesome one. I will refer here only to one common source of error and of undue optimism: a confusion between the effect of trade training on an individual and its effect on an entire group. Equip a single boy or a few boys for a well-paid trade, and higher wages will be got by these few. Equip a great many boys for such a trade, and the rate of wages in the trade may go down. Computations are sometimes made of the profitableness of trade training. It is figured out that the return in enhanced wages, compared with the expense of education, amounts to a magnificent profit on the investment. But it is forgotten that if a multitude get the training, the wages will be much less enhanced, conceivably not enhanced at all. Equip a small or a moderate number of young women for skilled, responsible, steady work, and they will get higher pay than before. Equip all the young women of the same class and the same age-groups for such work, and they will get pay not so much higher, conceivably not higher at all. The same proposition holds good here as in the cases of new machinery, great inventions, improved organization, scientific management. When confined to a few, and during the earlier stages, all these bring profit to the producers; when of universal application, they redound to the benefit of the community at large, and the producers get their share only as consumers and only to the same extent as other consumers.

In the preceding pages attention has been given chiefly to the case of the women who live at home and are members of a family group — the great majority. What of the minority, one-quarter or one-fifth of the total, who do not have the advantage of family life and family coöperation, who must make their own budget?

Information about the condition of these self-dependent women is not as full as could be wished. It seems probable, however, that not many of them are in the lowest-paid group. Their wages appear to be usually above the lowest rates, and above the average. The women who must make their way alone are in the main identical with the minority who get the better rates of pay and earn enough for independent living.[1] This result is indeed to be expected. The stress of need leads to more sustained exertion, more professional exertion, so to speak. In the opinion of well-informed and sympathetic observers, there is no good ground for the impression that it is prostitution which serves to eke out the receipts of the single woman. The connection of prostitution with low earnings is undeniable and indeed obvious; but the connection runs through the entire stratum of the poor, and is not especially noticeable in the case of the women quite dependent on their own exertions. These seem usually to earn enough to get along, and are no more likely to sell themselves than other women of similar antecedents and environment.

But, when all is said, the lot of the lone woman is hard. Among them there must be no small number of individuals whose case is pitiable. Their situation, like that of the women who have to support other dependents, brings out sharply and sadly the conflict between the two opposing principles of justice in distribution —

[1] This conclusion — better stated to be an impression — I derive from conversation with social workers, members of commissions, and others close to the situation. Further inquiry on the point is much to be desired.

the principle of need and that of efficiency. Our system of private property and competitive wages and prices bases earnings on the latter principle: to each according to his contribution. The insistent altruistic sentiment, the feeling of the larger self, rebels recurrently against the rigor of the established rule, and would mitigate it, or replace it by the other: to each according to his needs. So it is as regards the lone woman, the widow who has children to support, the older or younger woman who is the sole prop of a forlorn family. The need is great, even tho efficiency be slight.

Unfortunately, a prescription of minimum wages on the basis of "proper" independent support — the elimination of what is called parasitism — would not be specially effective in helping *these* women. They might or might not be among those retained in work, might or might not be among those left unemployed. I cannot but believe that for them we must turn to other measures, both palliative and curative. For the younger women, beyond question we need helpful education and helpful extension of the period of training. To them, also, charity can be extended, particularly in the provision of decent lodging at prices within their means. Among their problems, that of proper housing seems to be quite the most serious — morally, as well as for mere shelter and space. I can see no better opportunity for the sympathetic spirit than in well-devised accommodations for this special class. For the older women, widows' pensions, dependents' pensions, infirmity insurance — the various forms of wide provision by public authority for unavoidable calamities — loom up among the desiderata of the future. The feasibility of all such legislation depends on the perfecting of political and administrative machinery; a most urgent task, difficult to achieve,

inextricably bound up with all the defects of democracy, deserving the attention and the devotion of the social reformer.

The preceding discussion seems to justify a warning that there is need of going slow in the regulation of women's wages. More particularly there is need of caution in applying, as the standard for determining all wages, the amount needed by the independent women. The "parasitic" interpretation of the situation is unwarranted. The women workers are not a drain on their families, or on other industries, or on the community at large. It is precisely at this point that the campaign now being carried on in the United States is vulnerable. I cannot but believe that an attempt to apply on a sweeping scale the principle of abolishing "parasitism" must before long break down in practice. The real question is not whether the young women fail to contribute anything to their families or to the national dividend — they do contribute — but how their contribution can be made larger and how they can secure a larger share of the national dividend. The plain facts of the situation must be faced. The immense majority of women who work in factories and like employments do *not* need as a minimum any such wages as the commissions now at work are asked to prescribe. To prohibit their employment except on this basis — to require that every woman at work should receive some such sum as $8.00 a week — would not bring about the employment of all at any such rate, but a reduction of the number employed and a failure to attain the desired end.

This by no means leads to a rejection of public regulation or a denial of the usefulness and desirability of wages boards. The considerations adduced in preceding

pages do not point to the good old policy of *laissez faire*. It may well be that there is need of regulating and protecting the wages of women, and of prescribing minimum rates for those in the lowest group. The conditions of their employment are such as to lead easily to "unfair" wages — wages kept low by taking advantage of timidity, ignorance, lack of mobility, lack of bargaining power. The lack of standardization, and the divergent rates of pay under similar conditions, point strongly to haphazard influences of this sort. Collective bargaining through organization, difficult enough for the more independent and better-trained women, is almost out of the question for the lowest group. A public commission can act as a regulating and standardizing body, striving to eliminate the wage-depressing employer and bringing about the best terms which the social and industrial situation as a whole permits. And such a body, by the very fact of its existence, must be expected to exert its influence for the mitigation of the lot of the poor and weak, and therefore, within the debatable zone, for an upward trend of wages. Its aim must be to press up, not to keep down.

It may be asked what standard a wages board can set up if no absolute minimum is to be applied. The single-woman minimum is calculable and ascertainable — something on which figures can be got and a precise basis for action secured. How fix a minimum for the girls and women whose expenses are to be allocated in a family budget? The task would seem to be as hopeless as that of ascertaining the separate supply price of one among a group of commodities produced at joint cost. The answer must be that the problem *is* difficult, and that no simple rule is at hand for solving it. A wages commission or board not committed to the standard of

separate support would have to proceed by rule of thumb — by standardizing rates of pay not very greatly removed from those found in representative establishments of better grade and by watching how the prescribed rates operate from time to time. It would have to proceed cautiously and slowly, even tho sympathetically. Virtually this is what every wages board does, whatever the supposed basis of precise action. We make pretences when we say or imply that there are rigid principles on which to rest such determinations. Even for men, minimum wages or minimum expenses of living are in reality shifting and relative things. The supposed fixed amounts vary from place to place and from generation to generation. It is all in the domain of opportunism.

F. W. TAUSSIG.

HARVARD UNIVERSITY.

ECONOMIC VALUE AND MORAL VALUE

SUMMARY

I. The term "value" needed, 444. — Value in the generic sense, as considered in the recent literature of philosophy, 446. — II. Economic value; consumption and acquisition, 451. — Interests and judgments, 452. — Measurement of interests, 454. — Alternative uses and exchanges, 460. — Price, 462. — III. The social value theory, 466. — The "social mind," 467. — Criticism of arguments for social value, 469. — IV. The economic moral standard, 476. — V. The higher moral standard, 480.

I

A NEW YORK business man has recently asserted that brains are cheap. By way of explanation he went on to say that any one could hire a college professor for five thousand dollars a year. Many would doubtless detect a *non sequitur* in this reasoning; but it is clear that in self-defense a college professor is bound to insist that being expensive is not the only way of being valuable. He may be driven to retort that the cheapest things in the world, things that are given and free, such as the grace of God, are often the most highly esteemed. And he may even confound his critic with the paradox that it is fortunate that things so estimable are cheap.

At any rate it seems fairly obvious that what is cheap may yet have redeeming features. If it fails in this one respect it may yet succeed in some other, and be judged by that. The term "cheap" is a term of disparagement, then, in some particular respect, or relatively to some one criterion among many that might be applied. If we wish to refer to the correlative opposite of cheap

we may speak of a thing as "worth a good deal," or as being "valuable." But these terms "worth" and "value" when thus employed have a special meaning determined by their economic context. That sort of value, the worth which is the opposite of cheapness, or which is summed up in the term "wealth," will then be value or worth in a restricted economic sense.

But the problem is not so simple as that. For unfortunately economics like philosophy is a somewhat nomadic science and does not respect fences; with the result that it grazes quite shamelessly where moralists are wont to roam. In short the ranges of economics and ethics overlap, and economists write in a highly economic manner on such topics as selfishness and social justice. This is not accidental or predatory, but inevitable and proper; the fact being that the two sciences are inextricably interwoven. We shall, I think, reach some such general result as this. There is a sort of value peculiar to economics, such as the correlative opposite of cheapness. Over and above this there is a sort of value common to economics and ethics, a normative, practical or conduct-value, which we may for the moment call "prudence." Then finally there is the province peculiar to ethics which no mere economist shall defile.

By this time I shall have been convicted of violating linguistic proprieties in my use of the term "value." But my excuse is that I am doing it intentionally. I am certainly not using the term "value" in the sense which has recently been conventionalized for purposes of economics — and do not mean to. That sense is purely technical; as is proved by Adam Smith's original phrases, "value in use" and "value in exchange,"[1] taken in conjunction with Mill's declaration that "the

[1] Wealth of Nations, Bk. I, chap. iv.

word Value, when used without adjunct, always means, in political economy, value in exchange." [1] As respects terms, the situation is simply this. The term "value" is a more general, a more elastic, and a more colorless term than "worth," or "good." Such a term is indispensable if we are to disengage a generic idea or principle from the overwhelming variety and confusion of our world of praise and disparagement. Consider, for example, some of the various ways in which a single object such as a book may be praised or disparaged. First, it may be disparaged as *cheap* by one who is thinking of the little you could get for it. Second, it may be disparaged as *mendacious* by one who is thinking of the author's intent to deceive; or third, as *ignorant* by one who is thinking of the author's intellectual incompetence. Fourth, it may be praised as *edifying* by one who is thinking of its effect upon the reader's piety, and fifth, it may be disparaged as *crude* or in bad taste by one who is thinking of its binding or its style. These various properties "cheap," "mendacious," "ignorant," "edifying," and "crude," differ characteristically as a group, from such other properties as the book's color, weight, and size. They are the terms in which the book may be estimated, the predicates of the *critical* judgments that may be pronounced upon it. We need the term "value" as a term to apply to all the predicates of this group. We may then speak of economic values, moral values, cognitive values, religious values and aesthetic values as various species of one genus. It follows that we should no longer speak of economics, after the manner of von Wieser [2] as "treating exhaustively of the entire sphere of value phenomena"; but as one of the group of value sciences,

[1] Principles of Political Economy, Bk. III, chap. i.

[2] Quoted in Urban's Valuation, p. 3.

having certain peculiar varieties of value as its province, and enjoying critical competence or authority only in its own restricted terms.

I do not mean to assert that the values enumerated above are isolated. That is impossible from the very fact that they possess a generic sameness. The fruitfulness of grouping them together lies in the fact that there are fundamental principles common to them all, and in the fact that they perpetually interact. If, as I think we shall agree, they are all functions of life, then they have both a common source and innumerable threads of cross-connection. Nevertheless some of them, at least, are mutually independent in that there is no constant relation between them, either in quantity or in sign. The same object may possess positive value in one sense, and negative value in another. Thus a woman may be vicious and beautiful, or grow less virtuous as she grows more beautiful. A drug may increase in price at the same time that it grows more injurious to health. *A* may be at the same time more intelligent and more vicious than *B*. Where this independent variability occurs we may speak of separate types of value even when a very considerable interaction is possible. Thus if economic commendation implied ethical commendation and in the same proportion, we should be dealing with only one type of value; but inasmuch as what is commended economically *may* be condemned ethically, there are evidently, as we say, two standards; even tho in any given case an object may be both wholesome and high-priced, or even high-priced because wholesome.

There has recently come into existence a branch of philosophy known as General Theory of Value (*Allgemeine Wertheorie*) or Philosophy of Value (*Philosophie der Werte, La notion de valeur*). Its object is to ex-

amine value in the generic sense, and to coördinate the several value sciences. Were economic theory to enter into a closer relation with this branch of philosophy the result would, I think, be mutually profitable. The way is now made easy by a common trend of theory and of method. Economic theory has steadily grown more psychological. It has long since abandoned the naïve view that economic value is an inherent property of gold and silver. More recently it has abandoned the view that economic value is a sort of stamp or coating that things acquire in the course of their production, whether by agriculture or any form of labor. There has been a steadily growing tendency, in theory at least, to go behind the existing forms and instruments of the economic process, to the human motives which underlie and animate the process. Men buy and sell because they want something and hope to get it; just as they make pictures and look at them because they like to, or worship God because they are afraid. All human institutions are rooted in human interests. This fact is easily overlooked because all human institutions become stereotyped and traditional, and man easily forgets that he made them. They die back, or surround themselves with a crustaceous deposit. But an enlightened study of institutions always brings to light the human interests by virtue of which they live at the roots. So the whole vast mechanism of industry and commerce goes back to the creature man, with his needs and fears and hopes; the same creature who has otherwise expressed himself in art, religion, politics, and science. "We shall find the clue to the conduct of men in their commercial relations," says Mr. Wicksteed, "not in the first instance amongst those characteristics wherein our pursuit of industrial objects differs from our pursuit of pleasure or of learning, or our efforts for some political

and social ideal, but rather amongst those underlying principles of conduct and selection wherein they all resemble each other."[1]

The present philosophical theory of value is largely the outcome of a like tendency. It has not only had to shake off the naïve objectifying tendency — that crustacean or barnacle theory, according to which value is a substance which adheres to things; it has not only had to overcome a perpetual disposition to confuse values with their momentary or accidental embodiments — right action with custom, religion with the church; but it has suffered from a tradition of eloquence and edification. Value has been called "the good," or The Good, or The Highest Good, or God; and has been regarded as a sort of celestial object to be contemplated reverently from a distance. Tho sharp differences remain, and will remain while philosophers are philosophers, nevertheless there is now a widespread agreement on the main point, namely that values arise and have their being in the realm of emotion, desire and will. It follows that the philosopher of value, like the economic theorist, must carry his distinctions and his laws back in the last analysis to the dynamic aspect of mind, to that part of man, individual and social, with which he feels and acts. Here, then, philosophy and economics meet on common ground.

It is obviously out of the question in the present paper to discuss the question of the definition of value in the generic sense. We must acknowledge that such a conception underlies and unifies all the value sciences; and we must employ such a conception if we are to distinguish the special peculiarities of economic and ethical value; but we cannot pretend to any adequate formulation of it. We have already agreed that such a con-

[1] P. H. Wicksteed: Common Sense of Political Economy, p. 3.

ception must have to do with the motor-affective part of man. In saying this we touch the border of a region where the great and decisive battles of psychology are being fought. What is feeling and how is it distinguished from sensation? What is the relation of feeling and desire? Is there an independent mental element to be known as "conation"? How far are these aspects of mind separable from physiological dispositions? What is instinct and how is it to be explained? How far are instinct, desire, will, dependent on such intellectual processes as ideation and memory? It is evident that as respects these issues neutrality will be our wisest course, even if it necessitate our keeping away from the sphere of hostilities altogether. This we can afford to do provided I am allowed to make one or two generalizations.

First, we can avoid the special questions arising from the interrelations of feeling, desire, will, instinct and disposition, by using the term "interest," and leaving it ambiguous. This term calls attention to the essential fact that it is characteristic of mind as we know it to be *for* some things and *against* others; or to view some things with favor and others with disfavor. This duality of attitude appears in liking and disliking, in desire and aversion, in will and refusal, and in seeking and avoiding. Let us confine our attention to this pervasive characteristic of the motor-affective life, and let us call it "interest." This, then, is the original source of all value. That which is an object of interest, is *eo ipso* invested with value. An object, whatsoever it be, acquires value when interest is taken in it; just as anything, whatsoever it be, becomes a target when any one aims at it. Value is a sort of *rapport* into which things of any sort may enter with interested subjects. This is value in the original and essential sense. It

follows that there are as many different sorts of values as there are different sorts of interests and of interrelations among them.

The second generalization which I wish to make is this. Intellectual acts of some sort may or may not be invariably present when interest is taken in an object. But in the cases that we have specially to consider in the present paper, they are present to an extent that makes it imperative for us to recognize and allow for them. Writers on economic theory have greatly oversimplified the psychology of the affective and volitional life. This is not unnatural, and has not on the whole, I think, seriously vitiated their results. But I believe that much would be gained, in clearness if not in light, by a nicer regard for the rôle of judgment in interest.

Let me illustrate my meaning. I am pleased because my audience laughs at my joke, and I betray my satisfaction by a complacent smile. Suppose one of my audience to remark: "But we weren't laughing at your joke, we were laughing at your necktie." I should then feel shame-faced indeed—and should have to admit that my former demonstration of satisfaction was ill-advised. But it could not have been *ill*-advised, unless it was in some sense *advised*. I should say in extenuation of my behavior, "I thought you were laughing at my joke." In other words my pleasure was based on a judgment—which turned out to be false. I wasn't conscious of any judgment, and I didn't formulate one in words; but if it hadn't been there in some sense, I could not have been convicted of error. Error is proof of the presence of a judgment somewhere about (or among) the premises. Now this judgment had set up the object with which I was pleased—namely *the audience's laughing at my joke*. It was the situation *so construed* at which I was pleased. Or, as it is convenient to say, my pleasure was mediated

by a judgment. Now this sort of thing abounds as we shall see, in those felt needs, preferences and decisions which are in economic theory invoked to explain value. The individual choices into which the marginal theory analyzes the economic process are highly mediated, and only in a special and restricted sense measurements of the comparative strength of interests.

With these considerations in mind, let us now undertake a brief characterization of economic value: first, of the sort peculiar to economic thought, denoted by such terms as "wealth," "cheap," and the like; second, of the sort common to economics and to ethics.

II

Our first step must be to distinguish between *consumption* and *acquisition*. Any interested activity, such as enjoying a landscape or sawing wood, is made up of constituents, of agencies, instruments, materials and objects, which it may be said to "use" or employ. This is quite regardless of the nature of the activity, except that it shall be interested; and quite regardless of the nature of the constituents except that they shall be genuine parts of the activity. The interest may be independent, one carried on for its own sake, and without ulterior motive, as is the case with the enjoyment of a landscape; or it may be dependent, an interest which, like sawing wood, exists for the sake of some other interest like the enjoyment of warmth. The constituents may be mental or physical, organic or inorganic, appertaining to the agent himself or belonging to the environment. When a thing is apt or fit to be so used, we say that it possesses "utility"; and when it is actually being so used we say that it is being "consumed." Consumption, then, means use and not

metamorphosis or annihilation. One who smells an apple consumes it as truly as tho he were to eat it.

Now it is evident that in order to be consumed a utility must be existent, and must be available, that is, it must be within reach and it must be under control. It is one thing to use an object, and an implied but distinguishable thing to "have the use of it." This factor of availability or possession will under certain circumstances give rise to a secondary interest. In enjoying the landscape one uses one's eyes; but one is governed so far merely by the single interest of aesthetic enjoyment. Suppose now that one's vision is impaired. Then one may for the first time take an interest in *having eyes to see with;* or, as we may say, one for the first time "feels the need" of eyes. There arises what I propose to call "the dependent value of acquisition or possession."

It will be noted that this is a mediated interest. One wants eyes, we are supposing, for the sake of the aesthetic enjoyment, so that one virtually judges that vision has a certain specific utility. But one is virtually asserting more than that, for one is supposing that without regaining one's vision the aesthetic interest must be defeated — in other words, that one's vision is indispensable to that interest. This is sometimes spoken of as "dependence," or as "importance." Thus Menger speaks of "the importance which concrete goods, or quantities of goods, receive for us from the fact that we are conscious of being dependent on our disposal over them for the satisfaction of our wants."[1] Felt need, in short, rests upon a judgment of indispensable utility. It is well to note that it does not rest upon the *fact* of indispensable utility. For it may in any given case turn out that the utility is not indispensable at all;

[1] Quoted in Davenport's Value and Distribution, p. 327.

or even that the supposed utility is not really useful — that is, appropriate to the interest for which it was sought. I venture to say that this is usually the case with such commodities as doctors prescribe and druggists supply. But the need is felt for them none the less. Still less does this differentia of economic interest consist in the actual " scarcity " of its object. A very common substance like water or sugar may be concealed under a trade-name; and when thus *thought* to be scarce, it is coveted. But even suppositious scarcity is not a sufficient differentia, for the object must be judged useful as well.

It is not possible to divide interests into acquisitive and consumptive interests. Every interest uses or consumes something. But with reference to any given object it is possible to distinguish the interest in its acquisition, from that interest in which, having been acquired, it is used or consumed. There will be some interest which may be said to be the destination of anything which is needed, something which it is " for," as bread is " to eat " and a coat " to wear." Eating and wearing are the consumptive interests of bread and coat respectively, as distinguished from the baking, tailoring or trading which may be directed to their acquisition.

In so far as it is legitimate to speak of a specific economic interest it will be this *dependent, acquisitive or possessive interest,* this *felt need;* and economic value in the broadest sense will be said to be possessed by anything to which this interest is directed. The acquisitive or possessive interest may and does develop independence; that is, one may acquire and hold simply for the sake of acquiring and holding; and there is doubtless an instinct of acquisitiveness which contributes to the formation of such an interest. This inde-

pendent interest furnishes a supplementary motive which plays a part in economic processes; but the characteristic and sustaining economic motive is the dependent interest of getting and having for the sake of using. It behooves us, therefore, to examine more particularly into the nature of this interest.

In the first place, we must introduce the notion of an economic agent. This notion is necessary because we need to unite the interest of consumption, the interest of acquisition, and the faculty of judgment in one subject. This subject is the seat of both interests, the proprietor of the utilities in question, and the judge as to their utility and indispensableness. But, how, in the second place, shall the agent acquire the utility which he thinks he needs? The most obvious answer is that he may make it or find it — in short, work for it. But this at once introduces a new consideration. In order to work for it he must trench upon other interests. He proposes, let us say, to make himself a pair of glasses. But this takes time which he might consume otherwise. So he is brought to the question whether it is worth while. He needs his time for divers interests. How shall he divide it?

In raising this question the economic subject regards his possession, such as time, as so many different uses to which it can be put; and compares these uses in respect of their common character of utility. He thinks of his possession as meaning a set of commensurable alternatives. This is sometimes called "contemplating commodities under their aspect of equivalents or substitutes." [1] That one should feel a need at all, means that it has a certain appreciable positive strength. This implies that there may be other felt needs which are weaker; and that even should he be called upon to

[1] Wicksteed: op. cit., p. 7.

"sacrifice" these lesser needs there would still be a positive net motive for so doing. His greater need would impel him to take time needed for something else, provided it were felt to be needed less. Thus felt need without possession will always generate "work"; which is not necessarily painful, but is always an investment of time or services that might be fruitfully employed in other ways. Work implies the abandonment of lesser alternatives. But what determines the comparative strength or amount of felt need? How is the economic agent to choose?

Now it is evident that *in so far as he is prudent*, he will not merely choose, but he will choose deliberately; he will use his judgment so that his choice may be enlightened. Instead of allowing his felt needs merely to antagonize and overcome one another with what strength they may happen at the moment to possess, he will increase or alter their strength by explicating, amplifying, confirming or correcting the judgments on which they rest. Every felt need rests, as we have seen, on judgments as to the indispensable utility of objects. The strength of a felt need will therefore reflect *more or less correctly* the strength of some ulterior interest in which the supposed necessity is to be consumed. This is true of all dependent interests. Their motive is a borrowed one. In so far as the original or primary motive is brought clearly to consciousness, the felt need will be proportional to it. Thus the full strength of maternal love may be directed to anything the mother thinks necessary to the saving of her child's life.

I am assuming, then, that interests possess strength. I do not think it necessary to inquire exactly into the nature of this strength. I am willing for the purposes of the present discussion to allow that it may consist in a subjective intensity of feeling; tho I think it much

more likely that it is analyzable into the extent to which an interest commands the energies of an organism. It is a matter, I think, of neuro-muscular resistance and organization. For the purpose of evading the special difficulties of this question one might employ Professor B. M. Anderson's expression "motivating force."[1] But it is important to observe that the seat of this strength is in the individual psycho-physical organism and not in any environmental object. The strength of mother-love is in the mother, and not in the child; and to speak of the love-evoking power of the child would not be calculated to secure theoretical clearness.

As to the measurement of the comparative strength of interests, it is only necessary, I think, to make this remark. Interests are matched directly against one another in the act of choice. This measures their comparative strength only in so far as they are active at the moment of choice. It does not test the full strength of an interest such as might be developed and brought into play under the most favorable conditions. Furthermore, while choice is the simplest and most direct mode of measurement, it does not necessarily reveal the nature of an interest and the more ultimate quantities into which it can theoretically be analyzed. Runners may be matched in a race and their comparative speed be determined by observing the order in which they breast the tape. This, however, does not determine the maximum speed which either might develop under ideal conditions; nor does it reveal the fact that speed may be analyzed into a ratio of time and distance and measured in these more ultimate terms.

The strength of a felt need reflects, then, the strength of some interest from which the need arises. We can-

[1] Social Value, p. 106. I should prefer, however, not to speak of this force as "embodied in an object" even with the qualifications which the author proposes. (Cf. ibid., p. 97.)

not insist too strongly on the importance of the part played by judgment. The felt need of acquisitive interest is founded on the judgment that an interest of a certain strength requires the object in question. The interest for which the object is needed may not be "felt" at all. More often it is represented or mediated, and may, therefore, be misrepresented. If I seek food to satisfy tomorrow's hunger, I am not presently hungry. The strength of that hunger which I am providing for is not felt, but is predicted and estimated; and it may be incorrectly estimated. What I do feel, what does presently move me, is apprehension, solicitude or anxiety; but this is related to hunger only in that I *think* I am going to experience hunger to such and such a degree in the future. Similarly when the economic agent acts, as he so often does, in behalf of the interests of others, he is immediately moved only by what Professor Carver calls "his appreciation of his neighbor's need."[1] This "appreciation" may consist wholly in a cool estimate, and in any case will be highly mediated.

Our economic agent, then, in distributing his resources according to his needs will take account of the strength of the several interests which the needs reflect. He will judge any needed object in terms of what it is needed for — in terms of the consumption-interest to which it is relative, and will compare the strength of this consumption-interest with that of other consumption-interests which must suffer if the first is served. Let us now recall that one needs only what is indispensable, and in so far as it is indispensable. Need is measured not by the strength of that interest which the needed object may happen to supply, but by the

[1] Essays in Social Justice, p. 67. Cf. Wieser's Natural Value (Mallock's translation), Bk. I, chap. vi.

strength of that interest which would otherwise fail. Felt need is the attaching of importance to a thing. It will, therefore, always be *relative to the resources already supplied.* What I need can only be determined after knowing what I have and what I can do with what I have. Thus our friend whose vision is impaired may say: "I could use a new pair of glasses; but I don't really need them because I have an old pair that will fill the bill." And he might add: "However if I had another pair, I could keep one in reserve or give it to my brother." We meet here with the obvious but important fact that any economic agent will feel a different need for successive units of the same kind of utility. A second pair of glasses will be needed, but less urgently than a first. This does not necessarily have anything to do with the psychological phenomena of satiety and fatigue. These furnish experiences on which the agent's feeling of need is sometimes based. The degree of his felt need of a fifty-seventh pickle may reflect the experience that you cannot eat fifty-seven pickles within the time they will keep without getting tired of them. But it is much more likely to reflect a judgment as to the importance of having a pickle for Johnny, or for next month, where there is no question whatever of a jaded appetite. The principle of "diminishing utility," as I understand it, means simply that if an economic agent is considering what he can do with certain resources to meet his needs, he will follow an order of preference in distributing successive units whose uses are interchangeable. He will have a different use for a first unit, a second unit, and third unit of anything which is capable of the same set of uses. For various reasons these different alternative uses will not have the same degree of interest for him; he will provide for them in the order of their strength; and he will need

any additional unit only for those lesser uses not already provided for. Thus the felt need for the sixth unit of anything will reflect the greatest use that can be made for such a thing after five have been consumed. This will be its "marginal utility."

Let me take another example. Suppose that a friend who finds me comfortably ensconced in bed asks me to give up the bed and send it to a hospital. The discussion turns on how badly I need it. I have five beds in the house, all capable of providing me a means of repose. It is a question, then, of how badly I need a fifth bed. My friend brings me to see that after myself, my wife, my child, and the housemaid are provided for there is still a spare bed. My *need* of my bed, then — its indispensableness, signifies not that preëminent interest in my own repose, for this would be provided for as long as I had any bed; but the relatively weaker interest in having means of hospitality to my mother-in-law. That is the marginal or least interest among those that my stock of beds supplies. It determines the marginal utility of a bed in my economy — which may in this case be zero or less; so that I may not only willingly give the bed away, but even be glad to pay the charges of transportation.

Now I have no intention of laboring painfully through all the truisms of economic theory. But I wish to present as simply as possible the characteristic features of an economic situation reduced to its lowest terms. This situation involves (1) a differentiation of the acquisitive interest or felt need; (2) an economic subject or agent who acquires and possesses things for the sake of interests that depend on them, and who matches these interests against one another through acts of choice and comparative judgments; (3) the interchangeability of utilities among the interests which actuate the agent.

An economic good or commodity as a unit of wealth must be a thing which can be acquired, possessed and delivered over for consumption. It must be stable or "material" only in so far as it must be the common term, the point of intersection, which unites acquisition and consumption. There must be a positive interest in its acquisition or possession because of its being regarded as in some measure indispensable; and it will be capable of alternative uses of different rank. The amount of its economic value will be measurable in terms of the felt need for it — in terms of the immediate interest in its acquisition or possession. But this felt need will reflect more or less correctly the strength of the interest to which it is indispensable.

I have thus far ignored exchange; and it may be judged with dismay that I am only at the beginning of the inquiry. But I believe, as I take it most economists do, that exchange is to be understood in its essentials as an extension of that phenomenon of alternative uses, which we have seen to be a feature of the economic situation in its simpler and individual form. The first and the fundamental fact to observe is this: that anything which has alternative uses may be coveted or prized differently with reference to each of these uses. If the same hour may be spent either in my office, or on the golf links, or visiting a sick friend, there are three different interests in terms of which I may feel or judge the need of that hour. I may happen first to feel its importance in terms of my business interest, as the usefulness of the forty-first hour applied thereto this week. But if I am calculating and prudent, I compare the different marginal uses of this hour and choose that which I think is the greatest. There are three different marginal uses, probably all of different degrees of interest; and there is theoretically a greatest marginal

use, reflected in my strongest felt need so far as this is enlightened. There is no single need-value that can be attached to that hour, but a group or series of such values. The economist simply assumes that my acquisitive or possessive interest in that hour will be mediated by some prudential calculation and so will tend to reflect the strongest marginal consumptive interest to which the hour may be applied.

Now suppose that I am suffering from a severe headache. This is a much more urgent interest than any of those which I have so far considered. Unfortunately an hour cannot be applied to this interest. My possession is inelastic. But I may chance to meet a man who is willing to give me an aspirin tablet if I will watch his automobile for him. Barter thus amplifies the alternative uses of anything I may happen to possess. By means of it I can indirectly use my time for the stopping of pain. It is only by a happy chance that I meet a man whose interests so neatly dovetail into mine. But there is doubtless somebody in the world who has a box of aspirin tablets that he would be willing to give in exchange for an hour of my time; or that would be willing to give it for what somebody else would give for an hour of my time. A general confidence in this fact and the development of commercial facilities will bring about a willingness freely to interchange all commodities of a certain class — those commodities, namely, which are needed by somebody who is able and willing to give for them something which somebody else needs. Money facilitates this general exchange by providing a universal object of exchange, and a common measure of exchange-ratios.

Let us return to our individual and observe the effect upon the alternative use of his resources. I may now sell my hour, let us say, for one dollar; and for this

dollar I may secure not only aspirin tablets, but a necktie, an Ingersoll watch, one-fifth of an opera ticket, or fifty two-cent stamps. In short I can by converting my hour into a dollar convert it indirectly into some amount, fractional or multiple, of everything that is on the market, which comprises a very large proportion of the things I have any use for. It will be as true as ever that my hour has no single need-value, but a class of such values. This class of values is now, however, greatly enlarged. In possessing an hour of my time to apply as I will, I command a range of utilities nearly as wide as the whole circle of my interests. I may feel or estimate the need of that hour in almost any terms that I can appreciate at all. Among the possible estimates of its importance will be that which represents the highest marginal use that I can meet by any purchasable commodity. The price of my hour of time is its coefficient of convertibility, the formula by which I discover precisely to what uses it can be put by means of exchange. Thus in being "worth a dollar" it can be used as fifty two-cent stamps, as one Ingersoll watch, or as one-fifth towards an opera ticket. Price does not determine the amount of any of these marginal utilities, but merely unites them into one group—such that any one of them may be secured by surrendering another. They constitute a class of real options. They are such that one who possesses the object necessary for one, commands all the others as alternatives. In this sense two objects having the same price may be said to have the same *virtual utility*.

The price value of a commodity thus signifies a set of need-values within an individual economy, and not a single need-value. This variability is even more pronounced if we consider it in relation to the several different individual economies. The things I can do

with a dollar differ from the things you can do with it. Some uses may be open to me that are not open to you. But, more important still, similar uses will have different marginal values in your economy and in mine. I may need a watch more than a safety-razor, and with you the reverse may be the case; that is, the watch-use of a dollar may be greater with me and the razor-use with you. If such were not the case, there would be no motive for exchange. But even if the two uses were equal to one another in each of our economies, each use in my economy would still probably differ from the corresponding use in yours. If I am in reduced circumstances and you are affluent, then all the marginal uses of goods may be of greater interest to me than to you. In short, *the value of an economic commodity is relative to a subject that possesses it and applies it.*

We may look at price from another angle, and consider its causes rather than its applications. In this case analysis again brings us to the individual economy. A commodity commands a price because of a peculiar tension between individual economies. The units in exchange are subjects which combine the functions of possessing and coveting. Each both seeks to get and has to give. The forces that generate exchange spring from these individual centers. The economic agent's interests and resources are such that there are some terms on which he would rather have commodities he has not than commodities he has. For exchange to take place it is only necessary that he should meet and acquaint himself with another individual who is likewise ready to give up in order to get, and whose terms fit his. Each individual is supposed to act as prudent preference dictates, and to find in the other an instrument by which to promote such action. It is strictly a case of interaction and not a case of the dual manifestation of some

deeper single force. The categories of explanation apply primarily to the exchanging individuals, and the exchange itself is a conjunction which has to be explained by dividing it into two independently originating processes.

It is not necessary, I think, to consider the details of the theory of price. Certainly it is not necessary to suppose that the *only* factor in price determination is the shrewd calculation of buyers and sellers. No one would have the hardihood to deny that all sorts of other influences are effective. Whatever modifies and shapes human conduct, heredity, temperament, imitation, sickness, caprice, habit, law, religion, compassion, duty, will affect what a man is willing to give or take for any commodity. It is undoubtedly true that the conventions and institutions of industrial life, such as market-price, in turn modify the calculations which have given rise to them. It is also undoubtedly true that most economic phenomena, since they express many individuals, possess a certain inertia rendering them independent of any one individual, just as public opinion, tho a sum of private opinions, cannot be suddenly unmade by any one of them. But two facts remain. First, these various influences affect price only in so far as they do express themselves in a willingness to trade on certain terms. Price cannot be created by fiat. It is always a function of exchange, which in turn reflects the choices or comparative judgments of the parties to the exchange. Second, it is undoubtedly true that for the purpose of exchange it is usual to be as shrewdly calculating as possible. Tho other agencies may and do interfere with trade, the motive of shrewd calculation is constant enough in its operation, and considerable enough in importance, to warrant an abstract study of its effects.

What, then, is the proper interpretation of economic value as represented by price? What does it mean to say that a pair of shoes is worth such and such an amount? It means that this pair of shoes stands in certain complex relations to the interests of the several members of the community, so that whoever can dispose of it as he will, is enabled to convert it into any one of a determinate set of uses. Price equates a commodity with a class of alternative uses each of which is a variable. The "value in exchange" of a pair of shoes consists of a class of felt needs, which reflect marginal utilities, such as the foot-wear use of one pair of shoes, the musical use of an opera ticket, the apparel use of two shirts, where each of these alternative uses in turn varies with the individual who commands the commodity. Price is an equation with a number of unknown quantities. To derive from it any statement as to absolute values one must know the special circumstances to which it is to be applied. One must translate it into terms of a concrete economy. But then one is no longer merely quoting price. One is stating what the price-formula means in a given case; and every price-formula is such as to mean a great many different things under different conditions, actual or hypothetical.

It would be a mistake, then, to interpret the economic value of a commodity as tho it were a quantity of some simple interest-relation. The economic value of a loaf of bread is one thing in your economy and another in mine. It is still another thing, and some may think a more significant thing, in the economy of the hungriest man in a communistic economy such as one may construct hypothetically. But a loaf of bread has no one amount of "absolute" economic value any more than it has any single absolute distance. It has a set of such

amounts just as it has its own characteristic and determinate set of distances. To postulate a constant value for each commodity relatively to society as a whole, and to substitute this for an analytical interpretation in terms of individuals as variables, seems to me neither hopeful nor sound. It is much as tho one should propose to substitute a circular or elliptical force for the law of the parallelogram of forces by which such a force is analyzed into centrifugal and centripetal components.

III

There has recently developed a distinct movement towards a social interpretation of economic value. The social character of economic value has never been denied. Indeed it is so obvious that economics has long been regarded as *the* social science, *par excellence*. But it is thought by many[1] that the social aspect of the matter has been unduly subordinated by the "Austrian School" to the individual scale of utilities. Broadly speaking, there appear to be four grounds on which the social theory is advocated. In the first place, it is contended that general social forces such as law and fashion modify economic values; and that these are the important causes by which it is possible really to explain and predict fluctuations of value. In the second place, it is contended that if economic commodities are to be measured and summed they must possess some common intensive value-magnitude over and above the variable individual utilities which they supply. In the third place, it is contended that economics should seek a con-

[1] E. g., by Professor Anderson. His Social Value contains a summary and bibliography of this movement, as well as a statement of his own views. An earlier discussion of this tendency is to be found in Schumpeter's essay "On the Concept of Social Value," (this Journal, February, 1909) with which the present writer finds himself in substantial agreement.

ception of value which is independent of the competitive individualistic system that happens at present to rule. Fourthly, it is contended that economic policy must in the last analysis be judged by reference to standards of social welfare. The fourth of these arguments evidently involves the question of the relation of economic to ethical standards, and will be considered at the close of the paper. The third argument is not, I think of serious import. As we have seen, it is impossible to divorce economic value from possession or control. There could be no more radical alteration of economic relations than the substitution of the state for the individual as the economic subject. In a communistic or paternalistic society there would be one schedule of interests and one treasure of utilities from which to supply them. The state through its officials would in theory feel all needs and possess all resources. Apart from the fundamental conceptions of utility and need, there is no reason why any of the principles governing a society of autonomous and competing economic subjects should be applicable to such a situation. There remain, then, two arguments, which we may call the *causal argument*, and the *quantitative argument*. To these I shall return after a brief examination of the conception of "the social mind," the conception which these arguments are supposed in some sense to employ and justify.

The fact is that the expression "social mind," and the various alternative expressions which are used as equivalents or variants of it, are scarcely fit to print in the context of exact discourse.[1] This does not mean that there are no facts referred to by these expressions, but only that their use is so ill-defined that it is almost im-

[1] Thus when C. A. Ellwood writes that "all values (and therefore economic values among the rest) must express the collective judgment of some group" (Sociology in its Psychological Aspects, p. 34), he makes a statement which is false as respects "all values," and profoundly ambiguous as respects "collective judgment."

possible to discover just *which* facts are referred to at any given time. A general discussion of the social or non-social character of economic value is utterly blind and unprofitable. Without in the least pretending to exhaust the senses of the term "social," I shall mention a few of the things that it sometimes means. To avoid needless controversy let us leave open the question as to whether mind is essentially behavior or self-consciousness. In the former case an individual mind would be a single reacting organism in the biological sense. In the latter case an individual mind would be a subject capable of introspection. Assuming that "individual mind" may mean either of these things, we then have at least five things that may be meant by "social mind." First, it may mean simply a *plurality* of individual minds. In this sense population or any similar statistical conception which deals with numbers of individuals would be social. All other senses of sociality imply this fundamental sense. Second, it may mean *similarity* of individual minds. Where two or more minds are alike in any respect, we may speak of a type of mind, such as "the human mind" or "the American mind." Such sociality of mind may be accidental or it may be due to some common cause, such as climate. Third, minds may *act jointly* on a common object, or so as to produce an effect that no single mind would be capable of producing alone. Thus the pyramids of Egypt, or the military power of Germany, is a social phenomenon. Fourth, sociality of mind may mean the *interaction* of individual minds. This may be of radically different sorts. Single minds may act on one another as in "personal influence"; or one mind on many minds as in leadership; or many minds on one mind as in custom. The influence itself may be communicated directly, or by intermediate agencies that

are not themselves mental, as in heredity or art. Interaction of mind may result in sociality of the second or third kinds, as when imitation causes uniformity or sympathy leads to joint enterprises. Specially important is the case of mutuality of consciousness. Here the attitude of one mind toward a given object is mediated by a virtual judgment regarding the attitude of another mind, or a plurality of other minds, to the same object. One reacts to an object *as* the object of certain supposed reactions on the part of others. Acts of mind may thus affect one another before they reach the object. Fifthly, and lastly, it is possible to suppose that individual minds are integrated in a greater mind which may feel or think or behave in a way of its own. In saying "it is possible to suppose," I have perhaps put the matter too strongly. Not only is there no empirical evidence for such a mind; but it is doubtful if there is even a clear definition of what it would be if there were one. There is no such super-organism even among the most complete zoölogical collections. It would contradict all known anatomical and physiological laws. Nor is it clear that any such unity is possible in terms of self-consciousness, in view of the peculiar individuality which is supposed to attach to the data of introspection. The "over-soul" theory has few friends among sociologists and economists; and yet it is the only sense of sociality which definitely distinguishes society from some kind of a relation of individual minds. Let us now return to the two arguments for social value.

The first of these arguments I have called the *causal* argument. Thus Professor Anderson, for example, says that "it is only changes in fashion or mode, in general business confidence, in moral attitude toward this or the other sort of consumption, in the distribution

of wealth, changes in taxes and other laws, etc. — causes of a general social character — that you can count on to produce important changes in values." [1] That is to say, economic value is an effect of many minds, and is changed only when many minds are changed. General, pervasive causes, having a certain spread and volume alone afford a means of control and prediction. If the Austrian School has neglected this, then it needs to be corrected. But the essential contention of that school remains, so far as I can see, unaltered; in that these changes work through individuals and have their point of application in a more or less rational comparison of needs made by the individual seller or buyer. Whatever affects these individual schedules on a sufficiently large scale will affect prices. But to ignore the individual channels through which these forces pass, is elliptical. It is entirely true, as Urban for example contends, that the value which an individual puts on a commodity is mediated by his judgment as to the attitude of others. He values a pair of shoes, not for the protection they afford his feet merely, but for the position of the pair of shoes relatively to the needs of others, for the supposed willingness of countless unnamed individuals to give and take for them. In this sense of being an object for many minds, which act uniformly or jointly, or which interact at the same time that they act uniformly and jointly, an economic value is undoubtedly "social." But this does not, I submit, afford any serious ground of contention, any fundamental difference of principle between the Austrians and their critics. So long as one invokes only the first four of the senses of sociality which I have enumerated, then, while it is true that

[1] Review of Schumpeter's Dynamic Economics, Political Science Quarterly, December, 1915, p. 651.

economic value is a *resultant*[1] phenomenon, nevertheless, its components are the preferences of individuals. The substantive terms of economic life are subjects who feel needs which reflect the extent to which their possessions satisfy their interests, and who seek a completer satisfaction of their interests by appealing to like motives in other individuals.

Let us turn now to the second argument, which I have called the " quantitative " argument. It is contended that if the values of commodities are to be measured or added, they must exist in the commodities as amounts of a homogeneous quality having intensive magnitude. This quality is absolute in the sense that it is prior to the relations of price and exchange, which simply measure or reveal it. It is a function not of the diverse individual attitudes toward the commodity, but of some comparatively steady social demand. " If goods are to be added together, and a sum of wealth obtained," says Professor Anderson, " there must be a homogeneous element in them by virtue of which the addition can be made." And again: " The absolute value must first exist before the price, which is the expression of the value of a good in terms of some other valuable object which is shown as a measure, can be determined. In fact, *two* values, the value of the good measured, and the value of the good which is to serve as the measure, must first exist, as absolute quantities, before a price-ratio can be made between them, and their ' relative values ' shown."[2]

There are three points in the argument: the need of giving some value-meaning to the price or exchange-ratio; the need of accounting for the " objectivity " of economic values, that is their independence of the in-

[1] *Cf.* Wicksteed: Common Sense of Political Economy, p. 5.

[2] Social Value, pp. 118, 177–178.

dividual; and the need of supplying "absolute" terms for the value relations. Let us consider first the value-meaning of the ratio of exchange. If a pair of shoes is worth $5.00, and a rubber tire, $10.00, the value of the latter is said to be twice that of the former. It is clear that in this estimate we do not compare the tire and the shoes simply, but some commensurable character like size or weight, which both possess in different amounts. The mere equivalence between a tire and two pairs of shoes cannot constitute the value of either, since the equivalence itself has to be defined as in respect of value. But this value which both possess may perhaps be exchangeability; and we should then say that two things are equal in value when one will procure the other by exchange. But while there is no logical objection to such a conception, it does not satisfy our definition of value as a function of interest. We are brought back to utility and relation to need, as the fundamental terms of any measurement of *value*. What, then, is the significance of the price-equation in terms of need? When A exchanges for B they are not needed equally. On the contrary, they must be needed differently and preferred inversely if there is to be any motive for exchange. And ordinarily, as we know, it is even the case that both are needed more by one of the parties to the exchange than by the other. Nor is there, so far as I can see, any general social interest or need which can be said to be directed in the same measure to two commodities that exchange for one another or command the same price. Such a conception appears rather to be invented *ad hoc* to meet a supposed logical difficulty. It is gratuitous if we can interpret price-equivalence in terms of individual needs, and I think that we can. That shoes should be worth $5.00 a pair, signifies that whoever possesses either a pair of shoes or

$5.00 *virtually* possesses the other, and so commands the utility which either of these provides. He who possesses any one of the class of $5.00 commodities has it within his " means " to meet any of his needs which any one of these commodities can supply. All of the commodities which exchange at the rate of one to one, or which have the same price, constitute a range of options for the possessor of any one of them. Each is a means to all the others, and so is " as good as " any. It is in this sense and in this sense alone that they are equal. Each is convertible by the act of exchange to the same set of uses. These virtual utilities will differ from individual to individual both in order of importance, and in the intensity of the interests which underlie them. But objects of the same price will command the same set of virtual utilities in every economy that has access to the market.

The other two points, regarding " objectivity " and " absoluteness," can readily be disposed of. It is quite true that price is an objective fact, independent of the attitude of any single individual, and requiring him to take account of it in his calculations. But this means only that price is a social resultant in the sense that, because of the multiplicity of its causes, it is stable enough to be unaffected by the isolated action of a single cause. The absolute values, or the ultimate terms of the value-relations, are to be found in the strength of the interests or needs which the commodity is virtually capable of satisfying. There are indefinitely many such absolute values. Price is simply a summary statement of the relation between the set of absolute values for one commodity and those for another.

As to the summation of wealth, I see no reason to suppose that it has any unambiguous meaning. The

wealth of an individual may be expressed by adding up the prices of all the commodities he owns. The sum of money which he is said to be "worth" signifies only his control of all the amounts and combinations of various commodities which that sum of money will buy at prevailing rates. What actual values any such redistribution of his resources will create will depend on what interests he adopts and recognizes. He may get much or little according to his capacity for absorbing utilities, but in any case he will command a definite range of alternatives. The case of national wealth or human wealth is a very different matter. In this case the money equivalent of all commodities irrespective of ownership is lumped together, and the sum is capable of a variety of interpretations. Ordinarily one thinks of it in terms of what *he* could do with such a sum of money. In short he translates it into terms of his interests and needs. Or one might think of it as owned by a benevolent despot with a provident regard for all the interests and needs of the community. In either case, however, the control of the totality of wealth by one individual would obviously contradict the competitive conditions which generated the exchange-ratios. Collective wealth expressed in terms of money is thus a formula with only hypothetical applications. To mean anything it has to be supposed to be possessed by one individual, while other conditions, the determinants of price, remain the same.

Nor if we ignore price is there any single unambiguous sense in which total wealth can be computed. The aggregate of resources taken regardless of their ownership would yield different amounts of utility according to the innumerably different modes of its distribution. It could be reckoned in terms of the more acute needs or in terms of the less acute. It could be reckoned in

units of the most irksome labor which any member of the community is willing to perform. It could be reckoned in terms of present needs, or in terms of the future diminished needs after the distribution has been partially effected. There is in short no single absolute value that can be imputed to each unit-good, by the addition of which it is possible to reach a single absolute value for the aggregate.

In bringing this long digression to a close let me ask whether we have avoided that vicious circle with which the Austrian theory, owing to its neglect of social principles, is charged. According to the view I have proposed, price is built up out of the diverse but complementary needs of individuals. It is there rooted in absolute, subjective values. Having acquired a relative stability, it is then taken account of by individuals in their private calculations and thus applied or interpreted in terms of absolute, subjective values. But these applications, since they govern a man's dealings in the market again affect price. The whole process is, therefore, circular. What a man will offer or take for any commodity depends not merely on how badly he needs it, but on what he thinks it to be "worth." But altho this is circular, it is not vicious because it has a beginning and a direction. The process returns and reacts upon itself, just as private opinion is confirmed by the public opinion which it helps to form. There results a conservative tendency in both processes and for similar reasons. But in both cases there is a point of origin which does not itself require any of the later phases of the process to account for it.

I conclude, therefore, that the supposition of a sort of qualitative coating upon each economic good, or a light cast by the radiation of a social mind, is both mythical and gratuitous. It is important to recognize that

economic value is a function of interacting and reacting minds; and that it reflects all the complex agencies that operate in the inter-mental world. But to invoke a unitary social mind as a direct correlate of economic value is to obliterate difficulties without overcoming them.

IV

So much, then, for economic value in that first sense which is peculiarly economic. As we approach the borderland between economics and ethics, I must say a word about the obvious characteristics of moral values.

Moral value attaches to an act, motive or disposition, viewed in the light of a rule or principle, which in turn is designed to organize and harmonize interests. That moral values attach primarily to conduct is familiar enough. The second point is not so simple. A rule or principle of action defines what shall be done in varying situations. It formulates some constant relation between circumstances and actions; so that to apply it means to assign a value to the circumstance-variable, and so deduce the value of the action-variable. If we perform that action, we are doing what the principle requires. The boy who has been taught to adopt the rule of rising in the presence of ladies will in given cases complete his syllogism somewhat as follows: "Lady, therefore rise"; or "No lady, therefore remain seated." We have here I believe the real ground for the conception of "ought," with its element of necessity or constraint. And we have also the explanation of the peculiarly uncompromising character of moral values. A given act usually either is or is not what the rule requires. Deductively a conclusion either follows or does not follow from certain premises; it does not follow more or less.

But the peculiar sort of principle which is in question in the moral life is that by which two or more interests otherwise conflicting may be brought into relations, at least of compatibility, if possible, of coöperation and mutual reinforcement. This is a very broad construction of morality, and evidently makes the institutions of law and government distinctively ethical, as I think they are. Now, a principle of organization and adjustment may be of wide or narrow scope. There results a peculiar hierarchy of concentric moral spheres from the private inter-adjustment of an individual's interests, to the larger totalities of mankind or the kingdom of God. Each sphere in so far as it is morally organized will possess an internal adjustment of its constituent interests, and an external adjustment to ulterior interests. But in all cases it will hold that in so far as an act is dictated by the principle of harmony and mutuality it is virtuous, and in so far as it ignores or violates such dictates it is vicious.[1]

Now it is instantly apparent that the processes of business and trade as the economist portrays them are regulated by a moral principle. The economic agent is supposed to have adopted that counsel of prudence or shrewd calculation to which we have referred. As has frequently been pointed out, he is selfish only in a peculiar sense. He may be the trustee of an orphan asylum, and his customer may be the director of a board of foreign missions. Each may very fairly represent the interests with which he is charged.[2] But the fact remains that the two are in a sense pitted

[1] Moral value evidently attaches to merely hypothetical acts, and it might be supposed that existence would constitute a differentia of economic value. But economic value also, may attach to hypothetical objects; as, for example, when one says that one could get a certain price for a commodity *if* one had it.

[2] On this matter cf. Wicksteed, op. cit., Bk. I, chap. v.

against one another. The first party is for the moment not representing the heathen, and the second is temporarily ignoring the orphans. To this aspect of the matter we shall return presently. Meanwhile let us observe that internally each of these economic agents is administering his affairs according to a moral principle. He is seeking to do "justice" to the various interests for which he is acting. Instead of yielding wholly to the impulse of the moment he is taking ulterior interests into account and making provision for them according to what he thinks are their "rights." He is practising the *virtue* of economy. He is obeying those precepts of foresight, thrift, and restraint, which moralists of all ages have urged.

But, one may urge, the economist lets conduct take care of itself. He merely assumes prudential morality to be so constant a factor in human nature that he studies its effects without seeking to promote it. This is only half true. As respects economic value in the sense considered above, in the sense *peculiar* to economics, yes. In that context the economist merely takes morality as he finds it, together with religion and art and science as so many influences and motives that modify the conduct of the economic agent. He recognizes without prejudice the imprudence which sometimes enables money to command usurious interest, or the evil passions which create a use and a price for the services of the gunman. In this context the economist does not commend morality or denounce its opposite, but merely psychologizes.

But in another context, no. Much of economic study is devoted to the promotion of prudential morality. This aspect of economics can best be described as follows. The choices from which economic conduct issues, are, as we have seen highly mediated. They rest

upon judgments as to utility and indispensableness, as to causes and effects, as to the strength of ulterior interests which are not felt by the agent at the moment, and as to the stability and functioning of various established economic mechanisms. All of these judgments are liable to error. The economist by observing the consequences of economic action, is enabled to draw conclusions by which such errors may be prevented or corrected. He not only studies the results of the more or less successful prudence which men actually practise, but he imparts information by which greater success may be obtained. In the light of his knowledge of general economic forces he makes deductions from the principle of self-interest which any economic agent may apply, and which are imperatives, obligations, for any agent in so far as he adopts that principle. If one remarks to a physician, "You ought to charge more for your services,—you could easily get it," or to Mr. Henry Ford, apropos of his wage-scale, "This may be good religion, but it isn't good business," he is criticizing conduct by appeal to a norm or standard, precisely as a moralist does. He is measuring conduct in terms of values of the moral sort. All economic technology employs a more or less clearly defined ideal, by which it criticizes and which it seeks to promote. That ideal is a state of things in which every economic agent shall know the real state of his interests, whether his private interests or those he represents, whether present or future; in which he shall know just what resources are at his command and how they may be used among his interests; in which he shall know what possibilities of exchange the market affords, and in which the mechanisms facilitating exchange shall be perfected. Such a state of things would enable each agent to make the most of his resources through redistribution and

exchange; it would be a state of unimpeded circulation in which what each individual possessed would readily find its way to the highest marginal use within his province.

V

Altho we have here to do with the same standard which the moralist employs under the name of prudence, it is evident that that standard is not the final standard for moral criticism. Indeed so characteristic is it of the moralist to insist on higher standards, that prudence is commonly regarded as only quasi-moral. What then are its limitations?

First, it takes into account only the acquisitive interest; or other interests only in so far as their objects have to be acquired and are not merely enjoyed. Economic prudence is still further restricted in that economists confine themselves to acquisition by exchange. The result is that economic standards apply to life only where it touches the market. Prudence in the moral sense has a much wider application. Second, prudence accepts interests as it finds them, and even within the individual economy ignores the principles of moral discipline and culture. Prudence may increase or decrease the supplies appropriated to any interest; but it does not suppress old interests, or cultivate new ones. The counsel of asceticism or of "the simple life," for example, urges a man to reduce his dependence upon all objects which he does not readily possess, by learning not to care. The goal of the ancient cynic may be said to be total abolition of all economic goods, save perhaps time, in so far as each man may distribute that for himself. He is to reduce life to the consumption of free goods, such as nature's gifts and the folly of his neighbors. This counsel does not proceed from economics.

But the limitations of the economico-ethical standard are more evident and more familiar in another respect. It is intra-subjective and not inter-subjective. In the act of exchange each agent, as we have seen, is governed by a regard for a limited group of interests which he happens to recognize as his. The effect of his actions on the other agent with whom he has dealings is instrumental or accidental. Even tho the two actions may be mutually advantageous, it is not on that ground that he enters into it. Furthermore, within the limits which permit of exchange he seeks to profit at the expense of the other party. Tho both must gain in order that both may have a motive for exchange, each seeks to reduce the other's gain and increase his own. If he enjoys a greater bargaining power through his initial stock of resources, he presses that advantage, and does not seek to correct it. It is not that the economic agent is self-indulgent, or even narrow in his interests. He may as a matter of fact be animated by a large benevolence. But the fact remains that in the business relation, and judged by the strictly economic standard, he acts only for such interests as he chooses to call his own. The economic agent who stands at the other end of the business relation, and whatever interests that other agent may represent, are for the time being his means. To buy in the dearest market out of sheer goodness of heart, or to pay more than is asked so as to benefit a deserving merchant, is perhaps admirable, but it is not prescribed by the maxims of economics. If it is bad business for a merchant to cheat a widow this is not because of the widow, but because the dishonest merchant loses public confidence, and thus defeats his own interest.

Now our general moral law prescribes that an agent shall take account of all the interests which his conduct affects, or shall judge his conduct by its consequences all

round. A principle by which he organizes and equalizes a limited set of interests must on moral grounds be corrected by principles of larger scope, such as those providing for the good of his customer or of the community or of humanity. Morally speaking, then, prudence tho justified in its internal application, is arbitrary, or possibly even vicious, if it ignores these "higher" principles. The standard of inter-subjective distribution takes precedence, in case of conflict, of the standard of intra-subjective distribution. It is always possible that the standard of inter-subjective distribution shall tolerate a certain finality in the standard of intra-subjective distribution. This is explicitly adopted in the *laissez-faire* theory, according to which the good of all is most certainly secured by the independent prudence of each. But even in this case the precedence of the more general consideration is acknowledged in principle.[1] Thus the value *of* economic value, the ultimate estimate to be put on such value as is recorded in price, is social. In this sense, the sociological economists are correct. The general well-being of society furnishes a standard which is higher than that supplied either by the market, or by the foresight and prudence of the economic agent. But it is not necessary that the economist *qua* economist should apply this standard, since the values which it defines are new values, over and above those with which he is primarily concerned.

I realize that economic literature abounds in standards of inter-subjective distribution. But in my judg-

[1] It is customary to say that moral values have a certain absoluteness or finality that does not attach to economic values. This signifies two things: (1) The highest moral principle cannot be overruled by any other principle of conduct, while subordinate principles like economic prudence can; (2) The moral principles usually permit of a variety of alternative acts. In economics we are usually thinking of options among the permitted alternatives; whereas in ethics we are usually thinking of the difference between the permitted act (right) and the forbidden act (wrong). There is no option between right and wrong, but there is an option between various "rights." Cf. Anderson, op. cit., pp. 110–111; Mackenzie: "The Relation between Ethics and Economics," International Journal of Ethics, vol. iii, p. 285.

ment these standards are extra-economic, and can have no full warrant without examination of those questions which, in the traditional division of intellectual tasks, are assigned to ethics. Economics does, it is true, study what may be called *the natural course* of distribution among the factors of production. But in most investigations of this kind it is acknowledged that the premises are intra-subjective. The inter-subjective distribution is the accidental result of the application of the standard of intra-subjective distribution. Supposing all economic agents to act prudently, to get what they can with what they have, how much of the earnings of production will accrue to labor, to capital, to the landowner, or to the *entrepreneur?* That is a question with which the economist is prepared to deal in terms of his own characteristic principles. It may even be concluded that in some sense each factor gets from production what it contributes, in services or resources; but this means only that each factor has to receive such a share as shall induce it to act, or as it shall be willing to accept in exchange for its contribution. What a laborer, for example, accepts as the equivalent of his contribution depends on the extremity of his need, that is on his initial advantages or disadvantages. Hence those studies which simply follow the flow of wealth which is determined by its initial division and by the motives of economic prudence, throw no light on the way in which economic resources should have been divided originally, or should be redistributed in some ideal society which as a reformer one may seek to approximate.

If one asserts, as many economists do, that each individual *ought* to get out what he puts in, then one must mean something very different. One must mean that distribution should be according to one's "deserts,"

perhaps according to the absolute amount of one's exertion or sacrifice. To assert this is to erect a standard of inter-subjective distribution. But with what warrant? Usually the assertion is dogmatic, as when the socialist, relying on a vague sense of equity, asserts that each individual should be rewarded in proportion to his labor. Or perhaps distribution should be in accordance with the absolute intensity of needs. In this case one supposes a single benevolent agency which controls all the goods of the community, represents all of its interests, and applies the good at the points of highest marginal utility; taking away the luxuries of the rich in order to feed and clothe the poor. Closely allied to this is Hobson's view of a "Human Law of Distribution," based on a "human" as opposed to a "strictly business" valuation. Hateful and degrading toil on the side of production, and excess and satiety on the side of consumption, are to be replaced by art, exercise, service, satisfaction of needs, and temperate abundance, so that all the activities and interests of men shall harmonize and reinforce one another. This law is proposed as a standard by which to judge and to improve existing economic conditions and institutions.[1] Or one may propose, as Cooley does, that our pecuniary valuations should be made more adequately to reflect the higher "psychical" values, which he calls, "in a somewhat arbitrary sense" the "progress-values."[2] Or one may assert that distribution should observe and confirm class distinctions, thus perpetuating a cultivated leisure class and a proletariat to do the chores. Or one may apply the principle of commercial efficiency, and aim to secure free capital with which to compete

[1] J. A. Hobson, Work and Wealth, chap. xii.

[2] Charles H. Cooley: "The Progress of Pecuniary Valuation," in this Journal, November, 1915.

with other nations in the market of the world. Or one may regulate distribution by the principle of strength, as judged by success in the international or inter-racial struggle for existence. One may with Professor Carver propose the "work-bench" (or root-hog-or-die) philosophy in place of the "pig-trough" philosophy. But these proposals raise all the traditional questions of philosophical ethics. The economist is welcome to discuss them. Like all profoundly important problems, they are excessively difficult, and the more light the better. The economist has certain special qualifications for the task. But I fear that they cannot be solved or even discussed without that "philosophical clap-trap" and those "subjective quibbles" which Professor Carver, for example, abjures.[1] The economist must not here rely too greatly on the tools of thought which he has forged primarily for another use. He is in a sense as much out of his province as I have in this discussion been out of mine. In any case I believe that the most valuable work of the economist will be in the more restricted field. The greatest of intellectual triumphs is the discovery of a law. If the economist, taking the facts as he finds them, can by judicious abstraction discover certain constant functions among the diverse phenomena of industry and trade, he will both arm the reformer and nourish the philosophic mind.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

[1] In his Essays in Social Justice, pp. 60, 61.

THE EXTENT OF LABOR ORGANIZATION IN THE UNITED STATES IN 1910[1]

SUMMARY

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A DETERMINATION of the extent to which the laborers in industries and the subdivisions of industries are organized is made by comparing the number of trade union members with the total number of persons employed in those industries.[2] Such a comparison necessitates, first, an examination into the sources of the statistics of trade union membership, with a view to selecting the most accurate and representative data, and, second, the working over of those statistics into a form available for comparison with existing statistics of occupations.

[1] The material presented in this paper was collected by the writer while an agent of the United States Commission on Industrial Relations.

[2] Earlier estimates of the extent of organization in this country were made by indirect methods. See, for example, H. L. Moore, Laws of Wages, p. 110; L. H. Haney, Organized Labor and the Recent Advance in Prices, Publications of the American Statistical Association, vol. 12, pp. 160, 161.

I. Statistics of Trade Union Membership

The principal sources of the statistics of membership of American trade unions are as follows:

1. The membership lists published in the convention proceedings of the American Federation of Labor. This organization publishes in its annual proceedings a list of affiliated national and international unions, with the voting strength of each organization. The constitution of the Federation provides that "each delegate shall cast one vote for every one hundred members or major fraction thereof he represents." By multiplying the voting strength of each union by one hundred, the approximate membership of the organization is thus obtained. The voting strength of a union is in turn computed from the monthly payments of per capita tax to the American Federation of Labor. For example, a union having seventy-five members pays to the treasurer of the Federation two-thirds of a cent per member per month. At the end of a year the membership of this organization averages, on the basis of per capita receipts, seventy-five members; the union is given, therefore, a voting strength of one and its membership is calculated as one hundred. Similarly a union which has paid per capita tax on an average of one hundred and twenty-five members is given in the lists of the American Federation of Labor the same voting strength and the same membership as the union with an actual membership of seventy-five. It will be observed that altho the membership thus calculated differs somewhat from the actual membership reported, the error introduced is too small to be of any importance when the membership of an organization is in the thousands and when the data for a large number of organizations are at the same time under consideration.

There is reason to believe, however, that the figures published by the Federation do not furnish the best means for estimating the true strength of American trade unions. The list is, in the first place, not exhaustive; it contains only the membership of affiliated national unions, whereas the independent unions, which have an aggregate membership of about half a million, are omitted from the lists. Secondly, even the memberships for those unions which are included in the lists bear evidence of probable errors of significant size. They arise from discrepancies between the membership upon which the union pays its per capita tax and its actual membership. In times of strike, for example, when the cessation of payments by striking members is reflected in the reduced payments of the national union to the American Federation of Labor, the Federation will report a fall in the union's membership. As a matter of fact, however, the union has suffered no loss in membership. It seems, also, that a rapidly growing union, even in times of industrial peace, will continue for a long period to pay per capita tax on a constant membership, when in reality its actual membership is increasing rapidly. In many cases, therefore, the membership derived from the proceedings of the Federation lags considerably behind the true membership of the union. Instances of such differences can be observed in the statistics of membership of the United Brewery Workmen and of the Ladies' Garment Workers. Finally, a union, which for strategic purposes wishes to conceal its strength from employers, and from investigators generally, will for a long term of years pay tax upon a fictitious membership, which, altho it may approximate the actual membership of the union, successfully conceals any losses that the union has suffered or any gains that it has earned. Thus ever since 1907

the International Molders' Union has kept its actual strength hidden by continually paying to the American Federation of Labor per capita tax upon a membership of 50,000.

2. The Building Trades Department of the American Federation of Labor publishes in its annual convention proceedings a list of the membership of affiliated national unions. The membership there given is the average yearly membership of the organization upon which it pays per capita tax to the Building Trades Department. These statistics of membership are, therefore, open to the same criticisms as the data published in the proceedings of the American Federation of Labor. They are, however, preferred to the Federation's statistics because here not the voting strength of the union is published but the actual membership of the union as deduced from its payments of per capita tax.

3. The New York Department of Labor has been publishing annually since 1901 the membership of national and international trade unions in the United States. The lists thus published contain not only the membership of national unions affiliated with the American Federation of Labor, but of independent national unions. The membership of those unions affiliated with the American Federation of Labor is taken from the proceedings of that organization; whereas the membership of independent unions is obtained directly from the headquarters of the union. With regard to the great majority of national unions, namely, those which are affiliated with the American Federation of Labor, the lists published by the New York Department of Labor are hence open to the same objections as those urged against the first two sources. Besides, altho the inclusion of many independent unions makes this source more exhaustive than the others, there remain a num-

ber of important independent national unions not there contained.

4. The most important sources of the statistics of trade union membership are the records of the union. Practically every large trade union publishes either in the proceedings or in the reports of officers its membership at different times. For those unions which issue no reports containing their membership, it is possible in most cases to obtain that membership directly from the central office of the union. Some organizations publish their membership biennially, some annually, and others as frequently as every month. The great majority, also, distinguish, in their records and reports, members in good standing from those in arrears. Since, these data, in practically every instance, are compiled and published for the information of the officials and members of the union in order to keep them informed of the growth or decline of their organization; since also, these data furnish, in many unions, the basis for the payment of various benefits to members, for the successful working of which accurate statistics of membership are essential; and, finally, since these figures can in most instances be checked by the financial statements showing the income at different intervals from its members, the data of membership published by the union in question can be taken as the most representative of the actual strength of the organization. For this reason, wherever it was possible to obtain statistics of membership directly from the union itself, that source of information was preferred to the others. On the other hand, where, as in a few cases, there was reason to believe that the data submitted by a union grossly exaggerated its actual strength, the membership published by the American Federation of Labor was used.

Membership of local unions. — The membership of local unions directly affiliated with the American Federation of Labor was obtained from the offices of the Federation. As in the case of affiliated national unions, these local unions pay a monthly per capita tax to the Federation; and their membership is derived from the amount of tax paid by each union.

Apparently no publication in the United States contains the membership, by individual union, of independent local unions. The bulletins of the New York Department of Labor and the reports of the Massachusetts Bureau of Statistics give the membership of all local unions, including independent local unions, in those states, distributed among different trades and industries, and also the aggregate membership of independent local unions. It was impossible to obtain from those reports the membership of independent local unions in the two states in the form desired for the present study. The New York Department of Labor, however, prepared a list of independent local unions in New York State in 1913 showing the membership of each union in that year. This list, together with the directory of trade unions issued by that Department in 1914 (Bulletin No. 63), which contained the addresses of independent local unions in the state, and a similar directory issued by the Massachusetts Bureau (Labor Bulletin No. 98), made possible direct correspondence with independent local unions in both states and hence the collection of the membership in 1910 of many of that class of unions. In addition to these sources, it was possible to trace, from references made in the publications of many of the national unions, important independent local unions in various sections of the country. Finally, by corresponding with the secretaries of the state and city federations of labor and of several of the local building trades coun-

cils in the states of Pennsylvania, Illinois, Indiana, Massachusetts, and New York, a few additional independent local unions were brought to light.

Female membership. — The only exhaustive statistics of female membership of trade unions in the United States are to be found in the volume of the well-known Report on the Condition of Woman and Child Wage-Earners in the United States which deals with the History of Women in Trade Unions.[1] Female unionists are there, however, classified by industries and trades, and not by the unions of which they are members; the data were therefore not in a form available for the present study. The statistics of female membership used in this study were, for national unions, obtained either through correspondence with the union or were found in the official publications of the union. The female membership of independent local unions was obtained, in the case of those unions whose total membership was furnished by it, from the New York Department of Labor, and in the case of the remaining unions from the organizations themselves. The Typographical Union and the Retail Clerks' Union were unable to give their female membership; in these cases, the number of organized female compositors and retail clerks, given in the government report above cited, were taken as the female memberships of the two unions in 1910. These data were, however, first submitted for approval to the secretaries of the unions.

Canadian membership. — Beginning with 1911, the Canadian Department of Labor has issued an annual report on "Labour Organizations in Canada" in which are given the Canadian membership of American national unions, both those affiliated with the American Federation of Labor and those independent of that

[1] Senate Document, No. 645, 61st Congress, 2d Session, pp. 135–140.

organization. It was impossible to obtain the Canadian membership of American trade unions classified by sex. For practical purposes, therefore, in constructing Tables II and III, it was assumed that the Canadian membership was divided into males and females in the same proportion as the total membership of the union. Similarly, when a union was composed of persons following different occupations, such as the Bricklayers', Masons', and Plasterers' International Union, and it was desired to divide the Canadian membership of the union into these various occupations, so that the number, for example, of bricklayers, masons, and plasterers in the United States could be found, it was again assumed that the Canadian membership was divided among these occupations in the same proportion as the total membership of the union.

II. Statistics of Occupations

The choice of the proper statistics of union membership represents only the first stage in a study of the extent of organization in a country. If American trade unions were composed of persons employed in well-defined occupations or industries, and if the persons employed were classified under the same system as those engaged in the occupations and industries included in the Census of Occupations, a comparison of trade union membership with an occupational census would involve no great difficulty. Far from being simple in structure, however, American trade unions exhibit an ever increasing complexity, which defies any direct comparison of their membership with the occupational and industrial groups of the census. The problem, then, consists in so reclassifying the workers contained within a union as to make the resulting groups comparable with census

groups. But before this can be done, it is necessary first, to determine exactly what classes of workers are included in the jurisdiction of the union; and second, to make a reclassification along the lines followed in the census.

1. The statement of the jurisdiction claims of a union can be found usually in its constitution. In some cases these statements of jurisdiction enumerate in detail various classes of workers; in others, only the most general classes of workmen over whom the union claims jurisdiction are distinguished. With the data collected from a careful examination of the constitution of each union an attempt was made to carry out the comparison between union membership and the census. Here, however, certain fundamental difficulties were encountered. In the first place the census classification of occupations is based upon the character of the work done. Thus, in the glass industry, the census distinguishes such occupations as glass blower, cutter, snapper. The unions, on the other hand, are composed not of persons engaged in such distinctive occupations as glass blowing or glass cutting, but of flint glass workers, glass bottle makers, window glass workers. In other words, the trade union classification is based in this case not upon the character of the work done but upon the character of the finished product made by its members. It becomes necessary, therefore, if any detailed comparisons are to be made, to break up the membership of the Window Glass Workers' Union into cutters, blowers, flatteners, and snappers; and the same must be done with the membership of the other unions in the glass industry. In the second place, the occupations included in an industry in the census often represent a much finer division of the industry than those given in the jurisdictional claims of the union. The United Hatters' Union, for instance,

claims jurisdiction over "makers" and "finishers" employed in the manufacture of felt hats. In the fourth group of "occupations peculiar" to the felt hat industry, however, the census distinguishes more than twenty distinct occupations. In order, therefore, to make possible accurate comparisons between the census and trade union statistics, advance sheets of Table VI of the 1910 Census of Occupations (p. 302) were sent to the national secretaries of those unions in which difficulties like those described were encountered, with directions that they mark those occupations, in the particular table sent to that union, over which the union claimed jurisdiction in 1910. Where there were several unions in one industry, notes were kept of the occupations marked by one union and the table for that industry was sent in turn to the other unions. This device gave for practically each industry and sub-industry in the United States the jurisdictional claims of the trade union in that industry, expressed in the occupational terminology of the census.

2. Given this material showing the exact constitution of a union, the next problem consisted in breaking up the union's membership into classes. Thus it was necessary to divide the membership of the Brewery Workers' Union first into the general heads of brewery and distillery workers, and then further subdivide the membership within these groups. Similarly in the Metal Polishers' Union, composed of workers in the occupational groups of buffers, polishers, platers, and spinners, and in the semi-industrial groups of brass workers and silver workers, there was necessary a most detailed, but not altogether feasible, division of the membership into the foregoing classes. Of course, the data for so distributing union membership could be obtained only from the officers of the union; and much valuable information of

this kind was uncovered by correspondence with many of the national unions. In too many instances, however, the union was able to give only its total membership; its officers could make not even an estimate of the distribution of the union's membership among the occupations and industries over which it claimed jurisdiction. Hence many important comparisons, both as to the extent of organization in certain occupations and in certain subdivisions of industry, which would have thrown much additional light upon the distribution of unionism, were of necessity abandoned.

III. Membership of American Trade Unions

Table I shows the total membership of American national and international trade unions and the membership in the United States in 1910, the total membership of each union being classified by sex. The organizations contained in this table include national and international unions affiliated with the American Federation of Labor, independent national trade unions like the Railway Brotherhoods, and finally national labor federations like the Knights of Labor and the two organizations of the Industrial Workers of the World.

In addition to the unions contained in Table I, there are to be found in the United States many independent local unions and many local unions directly affiliated with the American Federation of Labor. The membership of these classes of unions in 1910 were respectively 11,949 and 19,256. If these data be added to the membership covered in Table I, the total membership of American trade unions in 1910 in the United States and Canada is seen to be 2,223,097.

IV. Organization by Industry

Table II is designed to give a survey of the distribution of trade unionism throughout the whole of industry in the United States in 1910. It shows, on the one hand, the 38,000,000 persons gainfully employed in the United States in 1910 distributed among the various industries and subindustries; on the other hand, the 2,100,000 members of trade unions similarly distributed among the same divisions and subdivisions of industry. Table VI of the Census of Occupations of 1910 (p. 302), showing the total number of persons in the United States in 1910, ten years of age and over, "engaged in each specified occupation in each industry or service group," was used as the basis for this table.

In the census table the various occupations in an industry are classified into four groups. Thus, for example, in coal mines there is first, the proprietary, official and supervisory group composed of such persons as owners, operators, foremen; second, the clerical group containing bookkeepers, stenogarphers; third, the group of "trades not peculiar to the industry," in which are to be found such occupations as carpenters, blacksmiths, painters; and fourth, the group of "occupations peculiar to the industry," which contains such occupations peculiar to the mining industry as drillers, screeners. The same system of classification is followed throughout this table for practically every industry in the United States. Because, however, a trade union claiming jurisdiction over an industry does not ordinarily admit any persons following the occupations included in the first three groups, it was decided to use in Table II the fourth group of "occupations peculiar to the industry" as representative of that industry, and to add to the occupations in that group any occupations

in the first three groups over which the union in the industry specifically claimed jurisdiction. The occupations of teamsters and firemen, which the census placed in the great majority of cases in the fourth group, unless the union in the industry claimed jurisdiction over them, were removed and were placed for obvious reasons, in the third group of "occupations not peculiar to the industry." Accordingly, the 640,581 persons given in Table II as being the total number of persons employed in coal mines, was obtained by adding to the total number of persons employed in the "occupations peculiar to the industry," the blacksmiths, boilermakers, carpenters, stationary engineers, machinists, millwrights, and drivers, occupations in the third group, over which the United Mine Workers' claimed jurisdiction.

This system was followed in the preparation of the entire table. The individual items of the first group of workers were added up for all industries and are given in Table II as the total number of persons employed in the United States in 1910 in proprietary, official and supervisory positions; and a similar total was made of the persons employed in clerical work. The occupations in the third group were split up into several classes and distributed among different industries. Thus, carpenters, painters, plumbers, and masons were put in the building industry; blacksmiths, boilermakers, and machinists in the iron and steel industry; stationary engineers, stationary firemen, and electricians and electrical engineers were inserted into the table as distinct occupations or trades.

In this process of rearrangement it was found that certain occupations — cabinetmakers, for example, — could not as a whole be fitted into any of the classifications in the table. As a result there will be noticed

small discrepancies between the totals of Table II and those given in the Census of Occupations. Similarly the total for trade union membership in Table II does not exactly equal the total trade union membership in the United States in 1910. This was due to two causes. First, the jurisdictional claims of some of the smaller trade unions were so vague that it was impossible to assign their membership to any of the industries or occupations included in Table II. Occasionally also jurisdiction would be claimed over workers who were to be found in several different industries, but the membership could not be broken up among the industries. Second, when it was necessary to break up the membership of a union into different industrial groups, there was in some cases a surplus unclassified membership which had to be rejected; and in others the union included in its list of classified members a number of members who were not in good standing, which made its membership in this case somewhat higher than that given in Table I. The differences are, however, too small to exert any appreciable influence upon the findings of this study. Thus the total number of persons gainfully employed in 1910 as given in Table II differs from the census total by only 30,000; the female totals differ by a little over 200. In trade union membership also the total membership in Table II differs from the actual total membership of the unions by only 16,000, and the female membership by 3,000.

Of the 38,130,000 persons gainfully employed in industry in the United States in 1910, 2,116,317 or 5.5 per cent were members of trade unions. Of the 30,060,000 male employees 2,042,000 or 6.8 per cent were unionists, and of the 8,075,000 females in industry 73,800 or 0.9 per cent were members of labor organizations. The total membership of trade unions was

distributed among the various industries in the following proportions:

1. Of the 18,262,000 persons employed in the production of salt, oil and natural gas, in chemical industries, button factories, oil refineries, rubber factories, turpentine distilleries, in the hand trades, in retail and wholesale trade, in agriculture, forestry, and animal husbandry, and in proprietary and supervisory capacities less than 1 per cent were organized.

2. Of the 8,819,000 persons employed in the metal industries, paper and pulp, textiles, charcoal, coke and gas works, as stationary engineers, in public, professional, domestic and personal service, and as clerical workers from 1 per cent to 5 per cent were organized.

3. Of the 2,230,000 persons employed in quarries, in the production of foodstuffs, iron and steel, in broom and brush factories and as stationary firemen from 5 per cent to 10 per cent were organized.

4. Of the 1,150,000 persons employed in the leather industries, in lumber and furniture industries, straw factories, in electric light and power plants, electric supply houses and as electricians and electrical engineers from 10 per cent to 15 per cent were organized.

5. Of the 5,915,000 persons employed in the clothing industries, in transportation and in the building trades from 15 per cent to 20 per cent were organized.

6. Of the 480,000 persons employed in the manufacture of clay, glass and stone products and in cigar and tobacco factories from 20 per cent to 30 per cent were organized.

7. Of the 1,084,000 persons employed in mining and in printing and bookbinding from 30 per cent to 40 per cent were organized.

8. Of the 73,475 persons employed in liquor and beverage industries over 40 per cent were organized.

As is to be expected from the small percentage of woman laborers who are members of trade unions, the range of organization among female workers is much smaller than among the total number of persons employed in industry. Thus among the 8,075,000 females gainfully employed in 1910, the following distribution is found:

1. Of the 2,407 females employed in liquor and beverage industries from 20 per cent to 30 per cent were organized.
2. Of the 333,000 employed in the clothing and printing and bookbinding industries from 10 per cent to 15 per cent were organized.
3. Of the 145,870 employed in leather industries and in cigar and tobacco factories from 5 per cent to 10 per cent were organized.
4. Of the 415,000 employed in the lumber, furniture, and textile industries from 1 per cent to 5 per cent were organized.
5. Of the remaining 7,180,000 less than 1 per cent were organized.[1]

The foregoing analysis indicates in a general way the extent and distribution of trade unionism in the whole of industry, in which are included employer and employee, salaried and wage-earning workers. While it is not possible in the present census of occupations to determine exactly the number of employers and of salaried workers in industry in 1910, because of the fact that in many cases (as for example "barbers") employers and employees are not distinguished by the census, it is feasible, nevertheless, to make some allow-

[1] Because of limitations of space, the female membership of the unions and the percentages of organization among female workers are not included in Tables II and III. The percentages upon which the above data are based can, however, be calculated by deducting in each case the male from the total membership and then computing the percentage of organization.

ance for such groups of workers. By combining the number of persons, throughout the whole of industry, in proprietary, official, and supervisory positions, those engaged in professional service as lawyers, physicians, clergymen, retail and wholesale merchants, persons engaged in the banking, insurance, and real estate business, farmers and gardeners, and such persons in domestic service as saloon keepers, hotel keepers, and the like, a total of 10,939,808 persons, of whom 1,582,278 are females, which may be roughly regarded as composed of the employing and salaried classes, was obtained. If now the 10,939,808 persons be subtracted from the total 38,130,000 persons employed in industry, what may be designated as the wage-earning classes are found to be 7.7 per cent organized. And if a similar deduction be made in the case of females, the female wage earners are found to have an organization of 1.1 per cent.

There are, further, certain groups of workers in industry among whom trade unionism has penetrated only to a slight degree. The character of these workers, however, and their position in industry makes them either impossible or extremely difficult of organization. Thus, farm laborers and domestic servants have become, through their condition of individual isolation, practically impossible to organize. Again, social position and the absence of a class consciousness make labor organization almost an impossibility among clerical workers, such as bookkeepers and stenographers, and among many persons engaged in trade in the capacity of salesmen and saleswomen. And, finally, such persons engaged in public service as firemen and policemen are frequently by their very relation to the state precluded from membership in labor unions. If, accordingly, there be deducted from the above total the 13,428,000 persons

employed as agricultural laborers, as clerical workers, in public service, in domestic service, and in trade, the remaining 13,761,609 persons are found to be 15.8 per cent organized. And if a similar deduction be made of the 4,516,891 females employed in the same industrial and service groups, the remaining 1,975,831 women in industry are 3.7 per cent organized.

In addition, however, to these persons who are excluded from trade unions because of inherent difficulty in their organization, there are large numbers of workmen who by the deliberate action of labor organizations are declared to be ineligible for membership. Thus, for example, many trade unions provide for the examination of those seeking membership in the union and for the rejection of those who are found to be incompetent workmen. Similarly it is not uncommon to find restrictions placed upon the admission into membership of workmen who had previously offended the union by acting as scabs or strikebreakers. It is impossible, however, to make an accurate estimate of the number of persons who are excluded from trade unions by the operation of such restrictions.

On the other hand, the effect of union rules limiting membership to workmen above a certain age can be estimated with a fair degree of accuracy. Practically every union has an age limit — different for the different unions — below which it will not admit to membership. For present purposes, it will be sufficiently accurate to choose as the lower age limit for total union membership twenty years and for females sixteen years. Of the total number of persons employed in industry in the United States in 1910, about 16.5 per cent were below the age of twenty and of the total number of female employees, about 7.9 per cent were below the age of sixteen. If now it be assumed that the percentage

of persons below the age of twenty be the same in the group of 13,761,609 persons, deduced above, as in the total number of persons gainfully employed in 1910, and that the percentage of females below the age of sixteen be the same in the 1,975,831 females as in the total number of female workers in industry, it can be calculated that, of the 13,761,609 persons who were found above to be possible of organization into trade unions, 2,270,665 were in 1910 below the age of twenty, and of the 1,975,831 organizable females, 156,090 were below the age of sixteen. Making these deductions the remaining 11,490,944 persons, male and female, show a degree of organization of 18.4 per cent and the remaining 1,819,741 females an organization of 4.1 per cent. The last percentages indicate roughly the extent of organization of those persons in industry whom trade unions make definite and sustained efforts to organize.

The above data show the extent of organization in the larger divisions of industry. A closer examination of the table, however, gives interesting information concerning the position of trade unionism in the subdivisions of industry. Thus, altho the clay, glass and stone industries show an organization of more than 20 per cent, the brick, tile and terra cotta factories, which are included in that classification, are less than 4 per cent organized. Here the organization of skilled workers employed in glass factories, in the production of marble and stone goods, and in potteries has raised the percentage of organization for the group. Similarly the leather industries are more than 14 per cent organized; within that group, however, the tanneries are found to be little more than 1 per cent organized. Again the transportation industry has, as a whole, an organization of 17.3 per cent; but the 195,000 persons, for the greater part unskilled, employed in the construction and maintenance

of streets, roads, sewers, and bridges were hardly more than 2 per cent organized. Likewise, mining showed an organization of 30.5 per cent; but coal mines, over which the United Mine Workers claimed jurisdiction, were more than one-third organized, whereas all other mines, including copper, gold, lead, iron mines, which were under the jurisdiction of the Western Federation of Miners, were less than one-sixth organized.

The distribution of trade union membership in the liquor and beverage industries furnishes a vivid illustration of the value to a labor union of the boycott as a weapon to be employed in organizing an industry. Thus, of the 55,413 persons employed in breweries, the United Brewery Workmen succeeded in organizing almost 90 per cent. Distilleries, on the other hand, which are also under the jurisdiction of the same union, are less than 3 per cent organized. This difference in organization is attributed to the inability of the union to enforce a boycott upon the products of distilleries, because of the difficulty of tracing boycotted goods. The ability to control and divert patronage probably accounts for the differences in the degree of organization of bakeries and of candy factories. The possession of a union label is, in certain communities, of considerable value to a manufacturing baker; in order, therefore, to obtain the use of the label he will permit the organization of his employees. A label on candies, however, is of much less value; principally because, among the poorer classes, candies are rarely sold in their original packages and because purchases are not made by adult members of the family. It is, consequently, not surprising to find that the Bakery and Confectionery Workers' Union has effected the organization of almost 18 per cent of the employees of bakeries, but has organized practically no workers in candy factories.

Altho many inferences cannot be drawn by a mere cursory examination of this table, yet a careful study of the jurisdictional claims of the unions included therein and of the distribution of their membership in the various industrial divisions of this table throws much interesting light upon the structure of American trade unions. It is, for example, an interesting commentary upon the recently observed tendencies toward industrial unionism in this country to note that, in 1910, 342,000 persons, or over 16 per cent of the total membership of American trade unions in that year, were members of unions that organized along industrial lines. As can be seen also from an examination of this table, several of the larger unions, while not perhaps definitely committed to the policy of industrial organization, can no longer be included in the ranks of pure trade organizations. Thus, for instance, the United Brotherhood of Carpenters and Joiners claims jurisdiction not only over carpenters, but has also a large membership of persons employed in box, furniture, and other woodworking factories. Indeed its membership in the woodworking factories in 1910 was greater than the combined membership of the ten organizations that, in that year, claimed jurisdiction over different classes of workers in the lumber and furniture industries. On the other hand, there are many illustrations in the table of the survival of the labor union that is organized strictly on trade or occupational lines. In the printing and bookbinding industry the 85,000 members of trade unions are divided in different proportions among twelve different labor organizations; and in the various subdivisions of the occupation of lithographer there are at least four separate and distinct organizations. Similarly in the building trades, even if cases of dual unionism are rejected, there are at least seventeen different

organizations claiming jurisdiction over occupations, which, altho they frequently overlap, can still be distinguished one from another.

A survey of the extent of organization in those industries into which there is a large influx of immigrants throws little light upon the relative ease or difficulty of organizing immigrant laborers. Coal mines show the relatively high degree of organization of 35 per cent; the clothing industries only the fair degree of organization of about 17 per cent. On the other hand, slaughter and packing houses, the iron and steel industry, and the textile industry are all less than 10 per cent organized. These data, far from indicating that the racial characteristics of workmen in an industry stimulate or hinder the growth of organization therein, seem to point rather to other influences that tend to hinder organization, such as the concentration of ownership, the preponderance in an industry of unskilled workers, and on the other hand, sometimes to an influence that tends to foster organization, such as the operation of agreements enforcing the closed shop.

Again, in the study of the influence upon trade union organization of the concentration of ownership in an industry, inferences are difficult to draw because of the impossibility of evaluating the many forces that at the same time affect organization in an industry. An analysis, however, of those industries in which the ownership is concentrated in few hands, reveals in almost every instance a low percentage of organization. Such corporations as the National Biscuit Company, the International Paper Company, the American Woolen Company, the American Tobacco Company, the United States Steel Corporation, have successfully prevented the spread of organization in their respective industries. Thus the paper and pulp industry shows an

organization of only 2.6 per cent; the textile industry 3.7 per cent. The iron and steel industry, even tho the percentage in it is raised by the inclusion in this group of the total number of persons engaged in such occupations as molders, machinists, and the like, is nevertheless, less than 10 per cent organized. Bakeries, to be sure, are 17 per cent organized; but the bulk of the union membership is probably to be found in the smaller establishments. Similarly, cigar and tobacco factories show the relatively high percentage of organization of 27.3 per cent; here too, however, the organization flourishes in the independent cigar factories, whereas the establishments owned by the American Tobacco Company, in which are manufactured cigarettes and tobacco, and over which the Tobacco Workers' Union claims jurisdiction, is practically not organized at all. Again, the telegraph industry, which is controlled by the Postal Telegraph Company and by the Western Union Telegraph Company, is 11.8 per cent organized; but if it were possible to separate that portion of the industry which is connected with the transportation industry, in which organization is probably stimulated by the presence of powerful labor organizations in other branches of that industry, the remaining workers in the telegraph industry would show a very small percentage of organization.

V. Organization by Occupation

As was stated in the discussion of that table, Table II was designed to give a conspectus of the whole of industry. It was intended to answer the question: given 38,000,000 persons employed in various branches of industry, into which of these divisions of industry and in what proportion has trade unionism penetrated? The basis for the table was, therefore, the industrial

classification of the census of occupations modified by the jurisdictional claims of the trade unions under consideration. In Table III the viewpoint is shifted. The question to be answered here is: how far has a trade union succeeded in organizing those workers over which it specifically claims jurisdiction? Accordingly the basis for Table III is the statement of the jurisdiction of each union. The difference between the two tables is well illustrated in the case of the International Glove Workers' Union. Thus, in Table II it was desired to determine the extent of organization in the glove industry; as representative of that industry were taken the 20,307 persons employed in the fourth group of "occupations peculiar to the industry"; over against this total were placed the 800 members of the Glove Workers' Union and glove factories were found to be 3.9 per cent organized. In Table III, however, the end is the determination of the extent of organization among those persons in the glove industry over whom the union specifically claims jurisdiction. An examination of the jurisdictional claims of the union shows that of the eleven occupations contained in the fourth group only six, embracing 12,343 employees, are claimed by the union. The percentage of organization among glove workers, therefore, is 6.5 per cent, as opposed to the 3.9 per cent which represents the percentage of organization of the glove industry.[1] A similar situation was presented in the Potters' and Brick, Tile and Terra Cotta Workers' Unions.

Table III differs, also, from the preceding one in another respect. In Table II we were concerned not

[1] In a number of cases the occupations claimed by the union corresponded so closely to those included in the fourth group of "occupations peculiar to the industry" that the data in Table II were thought to give as much information concerning the union as was necessary to properly estimate the success of the union in organizing the workers within its jurisdiction; in these cases the occupation was not placed in Table III, as it would have represented a mere duplication. The Brewery Workers' is a case in point.

only with the individual items but with their combination into totals; it was, therefore, necessary to avoid any duplication in the data. Thus, when the percentage of organization in breweries was being ascertained, the teamsters, who are admitted into the Brewery Workers' Union, were placed among the employees in breweries and were, for this reason, subtracted from the total number of teamsters in this country, when the extent of organization in the occupation of teamsters was being calculated. In Table III, however, where attention is centered upon each individual item and where no facts of significance could be obtained by comparing the total number of persons employed in the occupations enumerated in that table with the number of employees who are members of trade unions, a certain amount of duplication will be found on comparing different occupations in the table. When, for example, the extent of organization among bakers was under consideration, teamsters in the baking industry were included in the occupational group of bakers in Table III because the Bakery and Confectionery Workers' Union admits teamsters into membership in the organization. When later an examination was made of the percentage of organization among teamsters, unlike the procedure in Table II, teamsters in the bakeries were not subtracted from the total number of teamsters, because here the problem was the determination of the percentage of organization among all teamsters in the United States, regardless of their situation in one or another industry. To make the comparison between membership and number of employees in the occupation a fair one, the teamsters in the Bakery and Confectionery Workers' Union were added in the latter case to the teamsters who were members of other labor organizations.

Most interesting comparisons could no doubt have been made, had it been possible to work out the percentage of organization in more minute divisions of industry. Such comparisons were, however, in many cases rendered impossible, either through the failure of the census of occupations to distinguish finer classifications or through the inability to break up the membership of a union when the classification was present in the census. It would, for example, have been valuable to have calculated separately the percentage of organization among bricklayers, tile layers, and stone masons, with a view to analyzing the relative ease or difficulty of organizing workers in these three kindred occupations. Altho it was possible in the statistics of union membership to separate the three groups, yet the suggested comparisons could not be made because the census combined the three occupations into the general class of "brick and stone masons." Similarly, the census classification of stonecutters into a general group including soft stone cutters, granite cutters, and marble cutters precluded an inquiry into the relative strength of the Granite Cutters', Marble Workers', and Journeymen Stonecutters' Unions. Also, in the printing trades, the census classifications of lithographers, engravers, pressmen, and pressfeeders were so different from any combinations into which it was possible to arrange the membership of unions in the industry, that no estimates could be arrived at as to the degree of organization of photo-engravers, lithographers, and printing pressmen. The same situation arose with reference to many of the unions in the steam transportation and other industries.

In interpreting this table and the preceding one, the caution must be observed that a mere difference in percentage does not always postulate a greater strength in the union showing the higher percentage of organiza-

tion. The character of the occupation and the territorial distribution of the persons employed in the occupation must be considered. Carpenters, for example, show a percentage of organization of almost 21 per cent. If, however, it be noted that of the 817,000 carpenters in the United States in 1910, many were to be found in rural districts and in small towns, and that the Carpenters' Union probably makes little effort to collect these scattered individuals into local unions, the status of organization among carpenters assumes a somewhat different aspect. Similarly it would not be entirely accurate to infer from the fact that electrotypers and stereotypers are 88.4 per cent organized, and that compositors, linotypers, and typesetters are only 34.9 per cent organized, that the International Stereotypers' and Electrotypers' Union is a stronger organization than the International Typographical Union. Probably the concentration of electrotypers and stereotypers in large establishments in a few of the great industrial centers makes possible an approach to complete organization among that class of workers; whereas printers are scattered over a much wider territory and their high percentage of organization in large establishments is offset by the lack of organization in the scattered sections of the trade. On the other hand, there is little doubt that the brick and stone masons, who show an organization of 39.1 per cent, are much more strongly organized than the brick, tile and terra cotta workers with an organization of 3.8 per cent. The data in this table indicate in most cases the degree of organization and the strength of the union in the trade; but before any positive conclusions are drawn with respect to an individual trade or group of trades, they should be safeguarded by an examination of the numerous factors that may in the cases under consideration affect the growth of organization.

In the discussion of Table II, an estimate was made of the effect upon the percentage of organization resulting from the inclusion in the totals of all persons employed in industry above the age of ten. Similarly, in this table a more accurate idea of a union's success in organizing a trade could be obtained if proper deductions were made for persons in the trade below the union's constitutional age limit. An examination of a few cases, however, shows that the effect of the deduction of persons in certain age groups, while palpable, is in no instance considerable enough to warrant a similar study for each occupation or trade. The Carpenters, for example, have a lower age limit of twenty-one years; about 5 per cent of the carpenters in the United States are below the age of twenty-one. If these are deducted from the total number of carpenters, a percentage of organization of 21.8, instead of the 20.8 per cent previously calculated, is found. Again, the Retail Clerks admit no one into their union under the age of sixteen; in 1910 there were about 32,000 clerks and salesmen and saleswomen employed in stores who were under sixteen years of age. When these are subtracted from the 1,264,000 retail clerks and the degree of organization among clerks above the age of sixteen is calculated, there is found to be no appreciable difference. Similar small differences can also be noted in such occupations as locomotive engineers, machinists, and others. It follows, therefore, that altho a marked increase in the percentage of organization may be observed when those under a certain age are deducted from the total number of persons employed in industry, yet when these deductions are distributed over many occupations and trades, the correction in each instance is of no great importance and may for practical purposes be disregarded.

For general discussion the occupations in Table III may be divided into four groups, between which, however, there must be understood to be no hard and fast lines of division. First those occupations or trades less than 15 per cent organized can be designated as poorly organized trades; in this group are included blacksmiths, brick, tile and terra cotta workers, carders, cooks, glove workers, machinists, retail clerks, spinners, teamsters, upholsterers, and waiters. Within the group, however, the percentage of organization among retail clerks, cooks, brick, tile and terra cotta workers and waiters is so small as to be almost negligible. The second group, made up of occupations from 15 per cent to 30 per cent organized, can be described as the moderately organized group. This includes actors, bakers, barbers, bartenders, bookbinders, carpenters, coopers, loomfixers, metal polishers, painters, plumbers, printers (textile), switchmen, tinsmiths, and wood carvers. The third group of strongly organized trades, from 30 per cent to 50 per cent organized, is composed of masons, compositors, locomotive firemen, mail carriers, molders, pattern makers, plasterers, potters, and wool-sorters and graders. Finally, the fourth group of very highly organized trades, showing an organization of over 50 per cent, is comprised by brakemen, electrotypers and stereotypers, locomotive engineers, railway conductors, and stonecutters.

As regards the organization of female labor, no trade shows a high percentage of organization. In fact the highest degree of organization in any of the occupations in the table is that of the female bookbinders who are less than 20 per cent organized. Indeed, interesting evidence is presented in this table, as in the preceding one, of the relatively greater difficulty of organizing female workers, in the fact that in only one case do

the female workers in the occupation or trade show as high a percentage of organization as the male laborers in the same trade.

The data in Table III should supplement the information contained in the previous table. A combination of the two tables should throw considerable light upon the distribution of organization within an industry or group of trades. For example, in Table II, the iron and steel industries are shown to have an organization of about 10 per cent. An examination of this table, however, reveals the interesting fact that much of this organization is to be explained by the high degree of organization among pattern makers and molders; both of which are more than 30 per cent organized. If a more intensive study of the same industry is made, it will be observed that practically the whole nucleus of labor organization in the iron and steel industry is to be found in the membership of such trade unions as the Molders, Machinists, Metal Polishers, Boilermakers, and in the Railway Car Workers' Unions. Deducting, therefore, from the total number of persons employed in iron and steel the number who are employed in these old line occupations and those employed in car shops, there remain about from 700,000 to 800,000 workers, probably for the major part unskilled, who would show an almost negligible percentage of organization. Similarly the building trades are as a whole about 16 per cent organized. But within that group of trades the masons are 39 per cent, the carpenters 20 per cent, the plasterers 32 per cent, the painters 17 per cent organized; the more than half a million unskilled building laborers are, on the other hand, practically totally unorganized. Again, steam railroads are almost one-fourth organized. Of the 1,260,000 persons employed in the steam transportation industry, the 96,000 locomotive engineers are

74 per cent organized; the 65,000 railway conductors 87 per cent, the 76,000 firemen 37 per cent, the switchmen about 19 per cent; the 80,000 section hands and the 450,000 laborers, however, as was the case with the unskilled laborers in the other industries, are no more than a few per cent organized. The same facts may be observed by making like comparisons in the textile industry. Altho it may be difficult to draw a sharp line of demarcation between skilled and unskilled workers, yet a practical, if not absolutely accurate, division of the employees of various industries into skilled and unskilled workers emphasizes the important fact that the great bulk of organization in 1910 was to be found among the skilled workers and that the low percentage of organization in industry as a whole is to be attributed to the inability of labor unions to spread organization among the masses of unskilled laborers.

Again the 3,569,000 persons employed in domestic and personal service are 1.7 per cent organized. The bulk of this organization is to be found among the barbers and bartenders, who are respectively 15.2 per cent and 25.3 per cent organized. The thousands of domestic servants are, of course, not to be found in labor organizations. It is interesting here to point out again the effectiveness of the union card or label as an organizing device. The Hotel and Restaurant Employees' International Alliance and Bartenders' International League of America admits to membership, cooks, waiters, and bartenders. Of these three groups of workers, the cooks are only 0.4 per cent organized, the waiters 4 per cent, and the bartenders show the relatively high organization of over 25 per cent. These differences in organization are to be partially attributed to the ability of trade unions to divert patronage from non-union saloons and to their inability to control, to any appreciable extent, the patronage of hotels and restaurants.

VI. Statistical Reform

The value of such a study as this could no doubt be greatly enhanced if it could be made to serve as the basis of a further comparative study. Interesting and instructive as it is to know how far industry is organized at a certain time, it is even more so to be able to trace over a period of years the growth and decline of organization, its entry into and growth in one group and its decline in another group of industries. Such a comparison between the years 1900 and 1910 would be beset with difficulties, because of the vast difference between the system of classification followed by the Census of Occupations of 1910 and that followed in each decennial census from 1850 to 1900. Any hope for a comparative study must lie in the future.

In the meantime, however, efforts should be made to effect some reform in the organization of trade union statistics. As is always the case where statistics are collected partly through private initiative and partly by public agencies that are so widely scattered and so detached in management as our state bureaus of labor, the product is a mass of poorly organized material, available for use only after considerable manipulation. If such a central agency as the United States Bureau of Labor Statistics would prepare annually or biennially a report on American Trade Unions similar to those issued by the British government, the practice would operate, as public inquiries generally do, to encourage national and international unions in keeping more accurate and more detailed statistics concerning their membership; and further, a central agency, by cooperating with state bureaus, could lead each of these agencies to collect in its own state similar data concerning the membership of the independent and affiliated

local unions there located. The publication in one report of the statistics obtained by the United States Bureau of Labor Statistics from the national unions and those collected by the state bureaus would, after a series of years, present a continuous mass of material, invaluable to an adequate quantitative study of the labor movement.

In the preparation of this paper, it was by no means an uncommon experience to have a trade union secretary reply to a request for the female membership of his organization or for the distribution of its membership among specified occupations, that the statistics were to be found in the files of the union, but that they had never been compiled in a form available for publication. There can be little doubt that the existence of an authoritative governmental agency which at specified intervals submitted to trade unions schedules to be filled in with facts concerning their membership, would bring about the organization and the effective presentation of trade union statistics. Furthermore, a system of division of labor which would assign to the United States Bureau of Labor Statistics the collection of data concerning national and international trade unions, and to the state bureaus the collection of similar data concerning the affiliated and unaffiliated local unions within their respective states, would not only make much easier such a study as the present, but would make possible other important studies, as those relating to the territorial distribution of trade unionism, which, in the present state of these statistics, are possible in only a few cases.

LEO WOLMAN.

JOHNS HOPKINS UNIVERSITY.

ELECTRICAL RATES: THE LOAD FACTOR AND THE DENSITY FACTOR

SUMMARY

Scope of this paper, 519. — I. The load factor important in electricity because of a peculiar technical situation, 521. — Relates especially to fixed charges, 523. — Load curves, 525. — Diversity as important as long hours' use, 527. — Explicit load-factor rates, 529. — Adequate metering practicable for large consumers, 531. — The load factor an instrument of price-differentiation; its application a matter of commercial policy, 532. — II. Quantity discounts in practice especially difficult to deal with, 533. — The grounds of especially low rates to large consumers; such rates tend to be discriminatory, 534. — Step and block rates, 536. — Effects of isolated-plant competition, 538. — Proposed density factor discounts, 539. — Differentiation thus instead of discrimination, 540. — III. Cost analysis only one among several elements in electrical rate-making, 540. — Differential policy in load-factor rates, 541. — Wholesale discounts, also, are actually differential, 544.

A COMPREHENSIVE study of electrical rates would require one to pass in review the various features of electrical rate schedules. The variety and complexity of devices adopted by electrical companies to fit the charge to the special circumstances of the consumer, including the time when the service is rendered to him, are not exceeded in any branch of industry. There is no room for description of such devices in this paper. Even some of the more fundamental points of electrical rate theory and practice must be disposed of with bare mention. The present paper deals mainly with two fundamental questions: (1) the bearing of the time of consumption upon the rate, and (2) the proper influence of quantity taken upon the rate.

Consumer cost, however, is an element so important in the charge the electrical company makes to the small consumer, that it should be mentioned in passing. It consists of the cost of keeping separate accounts and rendering and collecting bills individually, of reading and maintaining the meter, of the carrying charges upon meter and meter installation; often also of carrying charges and maintenance for the service connecting the consumer's premises with the circuit in the street. All vary per consumer rather than per kilowatt hour; the amount, in other words, is nearly constant for the ordinary consumer whether he uses much or little electricity. This may be a separate element in the rate, that is, a consumer charge may take the place in part of what would otherwise be a higher kilowatt-hour charge; or it may be taken account of through mere "classification," that is, the putting of small consumers into a high rate (per kilowatt hour) class. But the present paper does not attempt to deal with this aspect of electrical rates.

With the necessary or standard average cost of electricity per kilowatt hour, or how this average is constituted, also, this paper is not concerned. Some costs do not lend themselves to allocation per kilowatt hour, and are not connected with the load factor question presently to be considered. And further, as to the costs that are variable and separable per kilowatt hour — supposing for the moment that the question relating to the average cost can be thus subdivided and limited — no analysis of the average and no attempt to determine its significance, or the share of total cost which the kilowatt-hour charge should take care of, is here made.

I. Load-Factor Rates

The importance of the load factor constitutes the special peculiarity of electrical rates. It is sufficient for present purposes to define the term as the ratio of average to maximum load.[1] By load is meant the kilowatts carried by a power station or generator or other machine, or the kilowatts required by a consumer or group of consumers.

Kilowatts, tho primarily a measure of capacity, in this connection serve to measure the rate of output, *i.e.*, of the consumption of energy. The rate of output at a given time corresponds to the utilized capacity, or the load, at that time. A rate of output of one kilowatt kept up during one hour gives a quantity of output of one kilowatt hour. So if we wish to arrive at the *average* output (or average load) of some specified power station for a year we divide the kilowatt-hour output for the year by 8760, the number of hours in the year; which gives us one term of the load-factor ratio.

The other term is the *highest* recorded output for some brief interval — five minutes, fifteen minutes, or half an hour, or possibly longer. Sometimes the instantaneous maximum has been used, but the American Institute of Electrical Engineers disapproves of this, doubtless because the capacity of a generator for a brief interval is much greater than its continuous rating, so that the technical and economic significance of a load factor based upon an instantaneous maximum, probably the result of a brief fluctuation of the load, is less than where the load for some appreciable interval

[1] The definition of the Standardization Rules of the American Institute of Electrical Engineers is as follows: "The ratio of the average power to the maximum power during a certain period of time. The average power is taken over a certain period of time, such as a day, a month, or a year, and the maximum is taken as the average over a short interval of the maximum load within that period."

is taken. It should perhaps be noted that the latter sort of maximum load is strictly the average kilowatts for the interval in question, tho of course measured integrally instead of being derived by an arithmetical operation upon a series of measurements.

It should be noted that the load factor is essentially an economic rather than a technological matter. The output of an electrical company is obviously determined by the needs and wishes of its consumers. Its maximum output is also determined by its consumers. It is the business of the company to be ready with the supply when it is wanted. If an electrical company seeks to increase its load factor, it must operate through the motives and habits of actual and possible consumers, in other words, not through internal organization and management, but through selling policies and rate schedules.

Until recently, and even now to some extent, the load factor has frequently been confused with the capacity factor. This is the ratio of average output to *capacity;* a technological matter, mentioned here chiefly to emphasize by way of contrast the economic character of the load factor proper. A plant with a capacity of 50,000 kilowatts may have maximum loads in successive years of 40,000, 45,000, and 50,000 kilowatts, or even something more. The fact that plants are planned to provide for future growth, and the fact that the most economical generator unit tends to be very large — 30,000 kilowatts is coming to be familiar — give the capacity factor a significance of its own. But it may sometimes be used as a makeshift in place of the load factor, economically more significant. This is in effect what happens when the capacity of a consumer's installation is employed, instead of his actual maximum demand, to determine the amount of his bill under a load-factor rate.

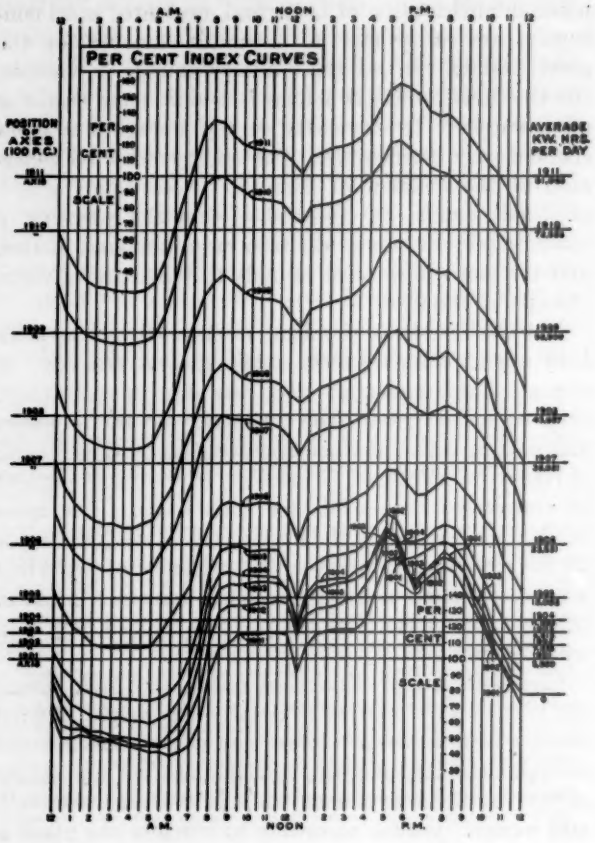
The peculiar technical situation in relation to electrical supply gives the load factor outstanding and peculiar importance there.[1] In manufactures, goods are made in anticipation of need, and are stored until consumers are ready and an economic demand for the goods results. In the gas industry storage is possible, tho the capacity of gas holders is seldom more than one day's supply. In electricity supply storage is not yet economically practicable. The energy must be generated at the moment of demand. Accordingly grates and boilers must be designed so that the quantity of water vaporized can be doubled on a moment's notice, and the generators must be able to take care of rapid changes in the load.

But the operating problems occasioned by the peak load are of comparatively small general bearing. If engineers and managers were not able to meet them they could not retain the business. So far as sharp and sudden peaks increase operating costs, they should of course be recovered, if possible, in the rates charged to consumers responsible for such costs. The more fundamental aspect of the importance of the load factor to the electrical company is the necessity of providing a plant sufficient to meet maximum demand. Most of the time the capacity of the plant is utilized only to a small extent.

Electricity supply doubtless ranks very high among the branches of industry as regards the weight of fixed charges in total costs. If we take rate of obsolescence of appliances into account, the comparative importance of the fixed-charge element in cost becomes relatively still higher. Hence, according to whether the plant is

[1] The nature and significance of the load factor should not be difficult to grasp, but it happens not to be familiar to the student of economics. In an article in the American Economic Review for December, 1915, the writer has tried to show that the conception is of greater or less importance in nearly all fields of economic study.

AVERAGE 24-HOUR VARIATION OF THE LOAD, 1901-1911
COMMONWEALTH EDISON CO. OF CHICAGO



much or little used, the fixed-charge element in cost, which can never be unimportant in total cost, will be relatively less or greater, respectively, as an element in the cost per unit of service. But the degree of economically possible utilization of the plant is measured by the load factor. If the load factor can be increased from 15 per cent to 30 per cent, the company can afford to take from the consumer of a given amount of electricity only half the contribution to meet fixed charges it formerly required.

Load curves best illustrate the actual character of the variation of the load. The accompanying full-page diagram shows the average daily variation of the load of the Commonwealth Edison Company of Chicago for a series of years, that is from 1901 to 1911 inclusive, in the form of per cent index curves.[1] The data represent

[1] The special use of the per cent index plan calls for brief explanation. It is chosen as the best means of showing comparative variation of electrical loads. In preparation for plotting, the figure for the average load for the 24-hour period is divided into each of the half-hourly values in the series of data for the particular year. The quotients (per cents) thus obtained are plotted above and below a mean axis, which represents unity or the average (the divisor). The value of a unit of the scale is therefore different for each curve and the curves do not show kilowatts. The emphasis is upon relative (per cent) variation from the average instead of upon absolute changes.

The curves are merely a special type of arithmetical curve, being referred to a 100 per cent axis, regardless of the absolute value of the series, instead of to a zero base. Each curve varies above and below its own axis. Ordinary arithmetical curves, if more than two or three in number and representing magnitudes at all diversified, cannot be compared to advantage with reference to their relative variation. The relative range of variation — of which the load factor is a function — is what is significant in the above curves. The eye can readily grasp resemblances and differences in this respect, as it cannot when all these curves are drawn to the same arithmetical scale. If the reader is interested in statistical graphics, he should compare the above diagram with the same facts represented by curves drawn to a single ordinary arithmetical scale in the "Report of the Committee on Gas, Oil and Electric Light (Chicago City Council) on the Investigation of the Commonwealth Edison Co.," May, 1913, p. 22. There the relative variations are distorted and made difficult or impossible of comparison.

These curves possess in large degree the property that is the special advantage of logarithmic curves in that they express relativity. But they are at the same time more readily understood by the layman who has not enough use for the latter to furnish him with the necessary incentive to learn what they mean. It is important to note that in the per cent index curves the relativity in question applies as between the various curves, but not as between parts (equal intercepts on the ordinates) at different heights of the same curve. In other words, the 10 points between 120 and 130 per cent are not relatively of the same significance as the 10 points between 80 and 90. In a logarithmic curve, on the other hand, there is true relativity as between its parts, so that,

the daily variation unaffected by differences of season or day of week; since for each year, to give the values shown, averages for every successive eighth day for the kilowatts at each half hour were obtained.

The special character of the curve used — the per cent index curve — makes it possible to locate the axes for the various years and thus to facilitate comparison between the years. The axes are accordingly arranged on an arithmetic scale which shows the growth of the business of the company from an average output of 5,560 to 81,063 kilowatt hours (approximately) per day in a period of ten years. Mr. Insull, the president of the Commonwealth Edison Company, is well known as an advocate of centralization of electricity supply and he practises successfully what he preaches. The curves show a lessened variation of the load between 1901 and 1911, in other words, an improvement of the load factor, but not a very marked change. As computed for the average condition shown, the diurnal load factor was 59.8 per cent in 1901 and 63.3 per cent in 1911. Meanwhile the annual load factor was raised from 29.3 to 43.5 per cent. The change in the time of the peak is perhaps of more general significance. In

for example, the graphic value of the 10 points between 80 and 90 is equal to that of the 15 points between 120 and 135. But the constancy of the representation of equivalent kilowatts for the parts of the same curve is probably an advantage of the per cent index curve used as it is in the diagram.

If one were to attempt to draw in the zero bases for the per cent index curves in the diagram, the result would be merely confusing. To omit the base would be very bad graphic practice for ordinary arithmetical curves, because in such a case the area between the curve and the base line is primarily significant and the course of the curve is significant only because it shows the development and variation of that area. So far as the same principle applies to these per cent index curves, it is the variation of the area between the curve and the axis that is significant. But where the zero base is equidistant from each of the axes of reference, the effect is much like that for logarithmic curves. In the latter case the zero base is infinitely distant so that the position of the curves in relation to each other can be shifted vertically at will with a view to better comparison.

The data for the diagram were obtained by Mr. L. H. Lubarsky from the Commonwealth Edison Co. for use in a book on statistical graphics that he is preparing. To him, also, the writer is indebted for the construction, according to plans jointly made, of the diagram and figures used in this paper.

1901 it came at 8 P.M.;[1] in 1911 at 5.30 P.M. In view of the fact that these data are year-round averages, it would appear that the overlapping of lighting for commercial purposes upon power uses during the comparatively few short days must result in a peak much more pronounced than appears in the average values plotted. The evening lighting load should show a nearly constant maximum the year round. The kind of lighting that constituted the peak at the earlier date is now nearly all off-peak, even on the showing of the curves as they stand; and, for the reason just mentioned, at the actual peak season in winter the diversity of this class of business would doubtless appear more marked.[2] In but few cities, it is true, would this situation be so highly developed or advanced as in Chicago. But the central stations are everywhere striving to diversify their business and especially to get large power consumers. In most large cities, therefore, if it is not already true that domestic lighting is mainly off the peak, it is likely that it will be so before long.

From the discussion of this diagram there is a natural transition to the consideration of the diversity factor. Disregarding certain refinements of the formal definition [3] that have no direct relation to present questions, we may describe the diversity factor as the ratio of the sum of the maxima of a group of consumers to the

[1] The curves are somewhat confusingly mixed at the lower part of the diagram — a defect from the point of view of graphics. But this is preferred either to sacrificing the disposition of the axes along an arithmetical scale or to reducing the range of variation indicated by a given per cent.

[2] Cf. the New York Edison curve for December, 1911, in the diagram opposite page 72 of vol. iii of the Report of the New York Public Service Commission for the First District for 1913. The same company's 1913 curve is much improved by its having meanwhile taken on the Third Avenue street railway system.

[3] The definition of the Standardisation Rules of the American Institute of Electrical Engineers is as follows: "The ratio of the sum of the maximum power demands of the subdivisions of any system or parts of a system to the maximum demand of the whole system or of the part of the system under consideration, measured at the point of supply."

maximum demand of the group in question when the individual requirements are combined. This ratio is greater than unity, often much greater. A certain much-used figure of the diversity factor for residence lighting from consumers to power station shows 5.5 or 550 per cent. Of course the diversity factor applies between groups as well as between individuals.

What the diversity factor signifies is that the bad load factor of an industry, of a particular kind of business, or of an individual consumer, does not determine whether the business is comparatively unprofitable to the central station, because the maximum may come at a different time from the general central-station maximum and most of the consumption may be off-peak, in which case the company's load factor can only be improved by the accession of the business in question. A commercial bank does not object to a depositor's drawing 90 or 100 per cent of his balance in a single check, because not all will do so at the same time.

The authoritative definition of the "diversity factor" does not deal explicitly with the point that is most important for rate-making, namely, the relation of the consumer's maximum or of his aggregate consumption to the station peak. This relation may be expressed by the ratio of his maximum demand to his demand at the time of the station peak — which it has recently been proposed to call the *individual* diversity factor.[1] Or it may be expressed by the ratio of the consumer's *average* demand to his demand at the station peak time — a conception analogous to that of the load factor, and a ratio which in strict logic ought to be understood in place of the consumer's individual load factor in most theorizing about the load factor in relation to rates,

[1] H. B. Gear, "The Application of the Diversity Factor," in the technical volume, proceedings of the National Electric Light Association, 1915 Convention, page 245.

especially with reference to writings published before the general recognition of the importance of diversity.[1] It is, of course, the individual consumer's claim to consideration in respect to the character of his load curve that ought, if possible, to be recognized in the rate he receives. The objection to allowing for the diversity of a *class* of consumers by way of a class rate is that good and bad are lumped, and the average rate thus arrived at gives no incentive to the consumer to better the conditions of consumption with reference to the company's load factor, which betterment underlies the recognition of load factor and diversity factor in any form. But in the case of the small consumer the direct recognition of load characteristics is doubtless impracticable.

The character of the two important types of rate in which the load factor is explicit — as distinguished from being implied in the rate classification used — is shown by curves in Figure 1. True, there is another type of device, explicitly based on the load factor, by which the rate for current taken during the peak time of day is simply double that for other times, the result being obtained through a meter that registers twice as fast during the critical time. But this method of dealing with the problem is practically unused at present.

Figure 1 shows the difference between these two types — the Hopkinson type and the Wright type of rate. The former consists of two charges which are combined in computing the consumer's bill, one being so much per unit of demand (maximum kilowatt capacity required), and the other so much per kilowatt hour of energy actually consumed. It may be, for example, $30 per kilowatt per year plus 3 cents per kilowatt

[1] Which may conveniently be dated by the adoption of its definition by the American Institute of Electrical Engineers, June, 1911.

hour. In the figure the hypothetical charges used are $2 per kilowatt per month plus 4 cents per kilowatt hour. The Wright type consists of two or more successive prices per kilowatt hour, the extent of application of the higher rate for the first block of energy consumed depending upon assumed or determined demand (or active connected load) in relation to hours' use per month or per day of such demand, with a lower rate for

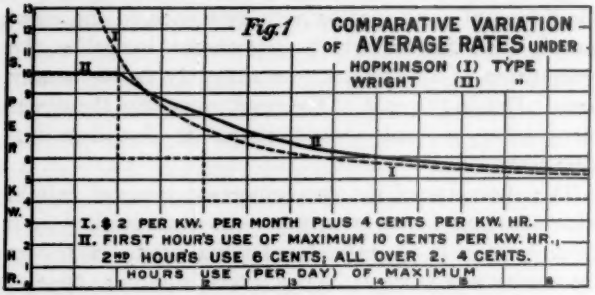


Fig. 1
COMPARATIVE VARIATION OF AVERAGE RATES UNDER
HOPKINSON (I) TYPE
WRIGHT (II) "
I. $ 2 PER KW. PER MONTH PLUS 4 CENTS PER KW. HR.
II. FIRST HOUR'S USE OF MAXIMUM 10 CENTS PER KW. HR.,
2ND HOUR'S USE 6 CENTS; ALL OVER 2, 4 CENTS.
HOURS USE (PER DAY) OF MAXIMUM

succeeding hours' use, there being in all commonly three successive charges per kilowatt hour, sometimes distinguished as primary, secondary and tertiary rates. For example, 12 cents for the first 30 hours' use of active connected load per month, 6 cents for the next 30 hours' use, and 4 cents for all over 60. If the active connected load is 1½ kilowatts, then the cost of 100 kilowatt hours a month will be $1\frac{1}{2} \times 30 = 45$ kilowatt hours at 12 cents, or $5.40, another 45 at 6 cents, or $2.70, and the remaining 10 kilowatt hours at 4 cents, or 40 cents, in all, $8.50.

The advantage of the Hopkinson rate, as is indicated in the curves, is its continuous variation, conformably to the variation of cost. But the Wright type adapts itself better to the prejudice of the consumer who does

not want to pay a bill when he consumes no energy, and also to the situation when a legal maximum per kilowatt hour is prescribed. In practice the Hopkinson type seems to be preferred for large consumers, but the Wright type is the load-factor rate that is commonly applied to small consumers.

But, as has been implied in the foregoing, the difficulties of determining the load characteristics of the small consumer make a thoro-going application of load-factor principles impracticable. The Wright rate as applied depends mostly on makeshift estimates and classifications, instead of relating to actual maxima and actual diversity. Diversity, moreover, is coming to take care of most of the small lighting consumers' demand, so that there is less need of watching his individual maximum and of making him pay high for short hours' use.

For the large consumers, on the other hand, such metering as gives not only the maximum but the whole load curve is entirely practicable, and therefore the rate may deal with load characteristics directly and explicitly. It is scarcely necessary to say that for such consumers low rates granted on load-factor grounds should be based upon the properly determined load factor and diversity of the consumer. The Hopkinson type of rate is adapted to the requirements of this situation. But in relation to the kilowatt charge at least as much importance ought to be attached to the consumer's demand at the time of the system peak as to his individual maximum. This might be accomplished by averaging the former with the latter. Of course in still other cases a low one-charge rate per kilowatt hour may be granted for purely off-peak demand, provision being made to prevent current being taken during the one or two hours of the station peak.

Certain general conclusions or inferences from the foregoing discussion, partly implied, partly already stated, may be briefly set forth as follows.

It is not sufficient to rank a consumer, with reference to load-factor considerations, according to his hours' use of maximum demand merely. Only when his maximum coincides with that of the station is this procedure correct. His diversity may fully make up for a low-load factor; and this even tho his individual load factor has some small direct importance with reference to the necessary investment in service, meter, etc. An unvarying load is also very likely superior from an operating viewpoint. But the diversity ratio is at least equally important, and according to strict load-factor analysis, it is almost exclusively important in relation to fixed charges.

Another fundamental point in relation to the load factor is the great individual differences between consumers who may be, and usually are, lumped under the same class rate. Some averaging of conditions is inevitable in rate-making. But to give an individual consumer the benefit not of his own actual load factor and diversity ratio, but merely that of the average rank of the class with which he happens to be put, is open to fundamental objection. It is a merely static policy, giving no effective incentive to longer hours' use or to off-peak use. The bettering of the load factor of the company lowers cost, and the humblest contribution to the better situation ought, if practicable, to be given a full share of the resulting benefit in the form of a lower rate for a more intensive use of installation, especially off-peak use. For large consumers, at least, electrical rates should be definitely and explicitly dynamic. The Hopkinson type of rate — but with the diversity ratio emphasized as much as the load factor in determining

"demand" — offers the strongest incentive to diversification and intensification of use in a way to promote the improvement of the electrical company's load factor.

It is implied in what has been said of the relation between individual peaks and the station peak that load-factor analysis is not a matter of hard and fast allocation or separation of costs. If the station peak changes its position as to time of day, or if there is a plateau rather than a peak at the time of heaviest loading, it is obvious that the merely mathematical treatment of kilowatt or fixed-charge burden is not adapted to such a situation. But if the load-factor rate is considered a matter of commercial policy or a means to increasing the company's business in the direction desired, then the needed elasticity and adaptability is provided for and load-factor rates may be regarded as merely one very important species of differential rates.

II. Wholesale or Quantity Discounts

While the importance of the load factor in cost is peculiarly characteristic of electricity supply, yet, partly because it is not always a simple matter to determine the relation of the consumer's maximum demand to the system load factor, and partly for more general reasons, the most serious practical problem in constructing a fair rate schedule arises, not in connection with the load-factor aspect of rates, or not directly so, but instead in connection with the specially low rates granted to large consumers.

It is plausibly argued that the large consumers have better load factors and therefore should have lower rates. But we need attach little weight to such an argument on behalf of discounts based entirely on quantity. Classification by mere quantity taken is obviousl too

crude to fit load-factor conditions. For some conspicuous groups it does not fit at all, notably in the case of department stores and office buildings. Furthermore, if the due recognition of the load factor is what is purposed, it is entirely practicable to register the variations of the load of large consumers and give to each of them the full benefit of his load and diversity as such.

It should be added, perhaps, that because of the diversity of the different elements constituting the large consumer's kilowatt hour requirement, the computation and comparison of load factors would not of itself fully justify correspondingly low rates to him. The diversity in question would favor the company as much if each element represented a different consumer. Such large consumers usually combine both power and light. These two, tho often metered separately, are ordinarily billed together; yet the company is no better off because of the mere fact that they are billed together. Their simple combination will result in a higher load factor than holds for either separately. The situation is similar as regards the load factor of a landlord who combines his tenants' consumption with his own. Diversity is not increased by combined billing. The fact that the diversity influences intermediate load factors, as well as that of the electrical company, has no particular bearing on rates. At least there is no occasion to give to the large consumer more advantage from the diversity within his own consumption than an explicit load-factor rate would give.

The actual grounds for low rates to large consumers are not so much technical or strictly economic as commercial. Concessions are made chiefly in order to get business that is wanted. Naturally the management feels that the large consumers are the ones specially

worth getting. They are also the ones with special bargaining power. Under these circumstances they sometimes obtain, not merely low rates, but rates so low as to involve discrimination. The writer is not in position to say from his observation and study of actual rates and their results that the managers of electrical companies in this way often overreach themselves and do harm to their business, as well as injustice to the public. He must refer rather to the general tendency of human nature to take sides and to become aggressively partisan when involved in economic competition or in any other kind of fight. For the rest, observation of the quality of the analysis of costs offered on behalf of the central-stations indicates that much "increment cost" reasoning is born of a desire to defend policies and practices that are evidently discriminatory. The supposed "individualization" of cost — a term which is pertinent only when it refers to the individualization of separable cost — is as much beside the mark as is the other extreme view of those who want uniform rates per kilowatt hour.

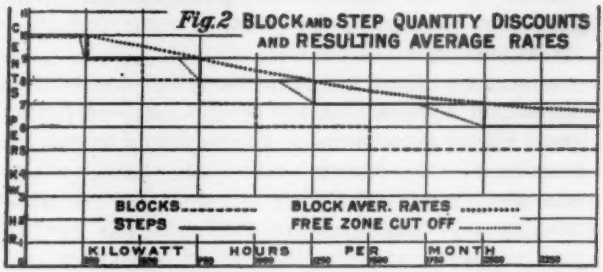
Let us consider the two sides of the question of large quantity discounts for electrical supply.

The supply of low-tension electric energy from the regular distribution system is, on the face of the matter, peculiarly devoid of any reason for granting to the large consumer a better rate per kilowatt hour than to the small consumer. The kilowatt hours supplied are as absolutely homogeneous as applied science can make them. There are no differences between small and large packages, no true "bulk delivery," no differences in cost of handling, nothing analogous to the "car-load lot" of freight rates. It is not without significance that etymologically speaking there is no such thing as "wholesale" electric supply. The original idea of the

word " wholesale " was evidently, for example, that of selling cloth by the piece instead of by the yard, a specified number of yards being cut off in the latter case as wanted. But there is no such thing as a " piece " price for electricity, the supply being potentially continuous.

It is significant in this connection that, in graduating the rate to meet the expectations of large consumers, the electrical companies encounter a difficulty that does not occur with ordinary wholesale prices. If, for example, 7 cents per kilowatt hour is an appropriate rate for a consumer taking 1000 kilowatt hours or more a month, and 4½ cents per kilowatt hour for a consumer taking 10,000 kilowatt hours or more, the ordinary commercial practice would be to state the rate in that way; just as one rate is quoted per dozen, and a rate proportionately less per gross. But in such case there would be consumers taking somewhat less than 10,000 kilowatt hours who would pay somewhat more than those taking just that quantity or a little in excess of it; so that at a certain stage a consumer would have the incentive to use more current in order to reduce his bill. This situation can be met by a proviso to the effect that a consumer taking not more than 10,000 kilowatt hours shall pay not more than $450. Even this means that there is a free zone for the consumer just under 10,000 kilowatt hours, where he can use energy without increasing his bill. Hence the more general solution is to frame the schedule on the so-called " block " instead of the " step " principle. By this method the large consumer pays for an initial block at the same rate as the small consumer and for successive further blocks at decreasing rates, so that the average rate varies continuously with the size of the consumer. The difference between the " step " and

"block" methods[1] is illustrated by the curves of Figure 2. The nature of their construction calls for no detailed comment.



Hypothetical data of Figure 2. Rates per month per kilowatt hour.

Quantity Block Rate		*Step Rate (by consumer size-classes)*		
Up to 250	10 cents	Less than 250	10 cents	
251– 500	9 "	From 250 to 750	9	"
501– 750	8 "	" 750 " 1250	8	"
751–1000	7 "	" 1250 " 2000	7	"
1001–1500	6 "	" 2000 " 3000	6	"
Over 1500	5 "	More than 3000	5	"

It is true that the cost of metering and accounting, etc., is larger per kilowatt hour for the very small consumer. But this ceases to be an appreciable difference before the quantity discounts become marked and is not an actual factor in wholesale rates proper. Furthermore, it is often taken care of, and very properly, by a special feature of the rate, namely the consumer charge or the minimum charge, a matter which there is no room to discuss in the present paper.

Turn now to another phase of the situation. There is probably no great industry where the fixed investment in *distribution* plant is more important than in electricity supply. It is, therefore, economically necessary to develop business to the fullest possible extent in the

[1] The terminology is that of the Rate Research Committee of the National Electric Light Association. See Convention proceedings, 1912, vol. i, p. 199.

territory served. The large consumers are therefore needed. On the same ground the more complete occupation of the field afforded by the small consumers is desirable; yet this seems to be regarded in a different light.

It is here that we find the principal reason why large consumers are offered specially low rates — the strong competition between isolated plants and central stations. The large consumer is able to supply himself by operating his own electric plant. This is not so uneconomical as it might seem in view of the general advantages of large-scale production. The private plant requires no investment for a transmission and distribution system. The steam end of the plant is presumably needed in any case for heating, and the heating may be done largely with low-pressure exhaust steam at inappreciable cost — if the operation of the plant be considered chargeable to the electrical use, or *vice versa* — always provided that the heat and electric energy are largely needed at about the same time. As to the importance of the isolated plants, it suffices to point out that if the central stations could put most of them out of business, the former would double their output.

A landlord of a large apartment house or office building thus has the option of supplying his own electricity or buying it, and he is therefore in position to bargain for a very low rate. This has lead in New York City to so-called "merchandizing" contracts, under which a landlord might buy from the electrical company at approximately 5 cents a kilowatt hour, and then sell to his tenants at 10 cents or a little less; the electrical company furnishing and reading all the meters and supplying the lamps, just as it would do if it dealt with the tenant individually and received for its services 10

cents per kilowatt hour instead of half as much. It is scarcely necessary to say that the Public Service Commission has disapproved of this practice and compelled some modifications of it. A detail that still stands is the counting of tenants' consumption towards the minimum annual consumption that entitles the landlord to the wholesale rate.

Under the circumstances mentioned, it is evident that a pure quantity discount amounting, even after deduction of something from the maximum rate to take care of consumer cost, to two-thirds and more of the retail rate, appears to be open to attack as discriminatory. But the importance of full utilization of the distribution system cannot be questioned. If the large consumer must be allowed to make only a minimum contribution towards the carrying charges on the distribution system in order that he be kept for the central station, it is good business from a social point of view as well as pecuniarily for him to be supplied under a rate as low as this situation implies.

Nevertheless, from an economic viewpoint, it is *density* of consumption that the central station needs; not large consumers as such, still less composite or "merchandizing" customers. If, in order to maintain density of consumption, it is necessary to grant low rates to loft and office buildings and apartment houses, it would seem best to make the density factor explicit in the rate schedule; that is, to grant discounts from the maximum rate on the basis of kilowatt hours consumed per month or year per foot or block front, or according to some other convenient and practicable measure of density. Such discounts should not depend upon whether the consumers within a given block are billed separately or through the landlord; altho, for reasons of administrative cost, it could hardly be

expected that the discounts would be offered to the smallest consumers as well as to medium and large consumers. So far as the writer knows this solution of the problem is original with him and untried, and it is made merely as a suggestion, subject to qualifications and modifications through experience.

There can be no objection in principle to a differential distribution of the burden of fixed charges in order that the central-station company may keep or get the business that would otherwise go to isolated plants. By differentiation is meant the non-uniform, or other than pro-rated, distribution of fixed charges and other joint costs. Within limits, the policy is defensible on general economic grounds, in relation both to the load-factor situation and the density-factor situation of the electrical-supply company. But the electrical companies doubtless need to be restrained from over-stepping bounds in their pursuit of traffic, and from passing beyond differentiation into discrimination.

III. Conclusions

It is a common assumption that rates can and should be based upon cost, in a sense which supposes the separate cost of at least every particular class of service, if not that of every individual consumer, can be ascertained. A pointed way of putting this claim is to allege that an equal profit should be taken from each class of consumers per unit of service performed. Of course if the "profit" can be thus definitely and arithmetically determined, that to which it is supposed to be added to make the resulting definite charge, namely the "cost," must be already definitely determined or determinable for the separate consumer or class of consumers.

It is true that load-factor analysis has been commonly put forward as a definite solution of the problem of the distribution of fixed charges among consumers, according to the responsibility of each consumer or class of consumers for these charges. We need not quarrel with the earlier proponents of the load factor if they claimed too much for it, especially since the importance of the diversity factor has only lately become clear. The argument was (and largely is) that costs, including return on capital, could be divided into two classes, running expenses and fixed or general charges, and that the fixed charges should be apportioned among consumers according to their maximum demands (kilowatt requirements) and the running costs apportioned according to kilowatt hours consumed. This directly leads to the Hopkinson or two-charge type of rate.

A preference for some such type of rate, where the scale of the consumer's requirements makes it practicable, does not imply, however, that the corresponding cost analysis accomplishes the separation of total costs in a way to make it possible to charge each consumer or class of consumers strictly according to the burden imposed on the company. If the maximum load of the company determines its necessary fixed charges, yet because of the diversity factor, the sum of the maxima of individual consumers is greater than that. Of course it is possible to scale down all these maxima in the ratio of the system diversity factor. But is an individual kilowatt maximum that occurs at midnight equally a burden upon the company with one of the same number of kilowatts that occurs at the hours and days of the system peak, say 5.30 P.M. during December.

An obvious alternative is to consider only the composition of the station peak in distributing fixed charges,

and put upon each consumer a demand charge proportioned to his kilowatt requirement at the time of the station peak. But will the electrical company be willing to exempt from all demand charges consumers who take no current at the peak time? Off-peak rates, it is true, are known, but the writer is not aware of any plan by which such consumers are systematically exempted from contributing something towards meeting the company's fixed charges. But if consumers entirely off the peak are compelled to pay anything for the use of the plant, the supposed principle according to which total costs are not merely apportioned by classes of consumers, but actually separated, is abandoned. And if the scheme in question were tried, what would happen where conditions gradually changed so that the 5 P.M. load became the peak in place of the 6 P.M. load? A consumer who closed his place of business at 5.30 P.M. would suddenly pass from the class of those who have no demand charge to pay, to the class of those who pay a heavy demand charge in addition to a kilowatt-hour charge. Of course the peak period could be more broadly defined. But all this is mere speculation. Of the numerous attempts of engineers and accountants to distribute fixed charges with the finality of separable costs, none will stand analysis. But where the rate schedule has developed in conformity with economic requirements, consumers with undesirable load characteristics (large consumers at least) pay more per kilowatt hour, and those with better load characteristics, especially with long hours' use, pay less per kilowatt hour. In other words, the load factor is a *guide* in the differential distribution of fixed charges. A long-hour user is charged less per kilowatt hour partly because of his less cost, but partly also, under an intelligent rate schedule, in order to encourage a more intensive use of

installations, both on his part and on the part of others.

This is merely what all legitimate price differentiation undertakes to do, namely to improve load and capacity factors. The reasons for charging a different price for kilowatt hours taken at different times is, in some respects, clearer than the reasons why a railroad charges a different price for carrying a ton of coal and a ton of wheat the same distance; but in other respects the electrical case is less clear and less convincing. If we start with the principle that the same quantity of service ought to cost the same price to all comers and at all times, then, since modern electrical instruments determine accurately both the quality and the quantity of the kilowatt hour, we find the kilowatt hours supplied by a given company are more homogeneous than two different tons of coal supplied from the same mine, not to speak of differences between coal and wheat. As to the difference in the time of the demand, that is a question of degree of utilization of plant, and therein similar to the question of getting additional freight. But the practical problem of full utilization is always present with an electrical company; while exceptions and qualifications may be necessary in the case of a railway.

To generalize from the foregoing: there are certain elements in cost that are fixed by the necessary extent of the plant, and, for the rest, are proportioned to time, not to the use made of the plant. All the cost of carrying the investment, perhaps most of depreciation, a good deal of general expenses, and a good deal of repairs, vary in proportion to time rather than to use. If the units of use for a given extent of plant are few, the burden of such costs per use unit is large; if the units of use are many, the unit cost is much less. If

fuller utilization can be brought about by differential prices, total unit cost is lessened; and then the policy of differentiation is economically justifiable. Since costs that vary with time are a permanent factor in the economic situation — a factor, as experience indicates, of increasing importance — differential rates must be recognized as permanent. Of course the policy of differentiation is often carried too far and becomes discrimination. But discrimination can be more effectively dealt with if we recognize fully and fairly the economic, and that includes the social, soundness of differentiation, that is, the non-uniform distribution of the fixed-charge element in cost, as such.

While the importance of the load factor constitutes the great peculiarity of the electrical rate situation, quantity discounts constitute the most troublesome practical problem. They, also, may be differential or discriminatory in character. Indeed it is in this form, rather than in that of load-factor rates, that differentiation chiefly manifests itself in electrical rate schedules. Quantity taken is perhaps more important than load characteristics as the reason for class rates, even where the latter are ostensibly based on load-factor grounds.

In this aspect electrical rates are chiefly of interest as showing the differential character of wholesale rates, which are ordinarily supposed to be based upon identifiable differences in costs. It happens that the latter sort of ground for wholesale rates is notably unimportant for the low-tension service of electrical supply companies, while the grounds for differentiation, or the non-uniform distribution of the fixed charges attributable to the distribution system, are especially important.

In both the respects discussed in this paper, therefore, electrical rates ought to be of great interest to

economists. The subject is, indeed, or should be, of interest to them according as differential rates are of general importance rather than merely according to their bearing on electric supply. To the general question attention will be given in a paper to follow.

G. P. WATKINS.

NEW YORK CITY.

DEPRECIATION AND RATE CONTROL

A FURTHER DISCUSSION

SUMMARY

The problem of depreciation in retroactive regulation, 546. — Principle of replacement cost discussed, 547. — Absurdity of using replacement cost new, 549. — Objections to deduction of depreciation answered, 552. — Depreciation under the principle of original cost, 555.

SHOULD depreciation be deducted in fixing the value of railroads and public utilities for rate-making purposes? The question has been discussed pro and con in a series of articles appearing in recent numbers of this Journal.[1] Just at present, there is urgent need of arriving at a satisfactory conclusion in view of the pending federal valuation of railways. The controversy, however, can as yet hardly be considered settled, and a renewal of the discussion may not be out of order.

One point at least has already been made clear: that a decision as to the correct policy for the future would not of itself determine the proper treatment of depreciation already accrued. In the case of depreciation already accrued, investors have been given no previous warning that depreciation must be charged off. Therefore the question arises whether it is fair to make any deduction *now* in determining the fair value. It is this special problem of retroactive regulation that has been the subject of the recent controversy, and the present comments will be confined to this one issue.

[1] Allyn A. Young, "Depreciation and Rate Control," Quarterly Journal of Economics, vol. xxviii, August, 1914, pp. 630–663; Joseph S. Davis & Allyn A. Young, "Depreciation and Rate Control," "A Criticism"; "A Reply"; "A Rejoinder"; "Concluding Remarks." Ibid., vol. xxix, February, 1915, pp. 362–400.

John Bauer, "Depreciation and Rate Control, a Question of Justice." Ibid., vol. xxix, May, 1915, pp. 651–659.

No one denies that railways must make allowance for renewals actually required in order to maintain the property at good operating efficiency. But depreciation begins before these renewals need be made. Should this unrealized depreciation be deducted in fixing the value? Professor Young has defended the stand taken by Mr. James E. Allison [1] in denying the propriety of a deduction. After a railroad has been operated for some time, he contends, it settles down to a state of normal depreciation, at which point annual renewal costs are so constant that they may be charged directly to operation. A depreciation reserve is therefore quite unnecessary. The conclusion is drawn that it would be unjust to make any deduction for a depreciation which there has been no reason to anticipate.

Before discussing the point, it is essential to have clearly in mind the general basis of valuation to which the problem of depreciation is applied. Otherwise one misses the underlying principle from which to draw any conclusions. For the sake of limiting the issue, it will be assumed here that cost of reproduction is to be the basis of valuation. The strong probability that reproduction cost will be accepted in rate regulation, so far as existing railway property is concerned, gives it particular importance in current discussions. Professor Young, I take it, does not confine his criticism to those cases where any one basis is used. But he takes exception to decisions of the U. S. Supreme Court,[2] which have specific reference to a reproduction cost valuation.

Why, then, is replacement cost accepted at all as a measure of the "fair value" on which a return is to be

[1] James E. Allison, "Should Public Service Properties be Depreciated?" Report to St. Louis Public Service Commission, September 11, 1912.

[2] Professor Young refers to Knoxville v. Knoxville Water Co., 212 U. S. 1 (1909) and Minnesota Rate Cases, 230 U. S. 352 (1913). Cf. this Journal, vol. xxviii, August, 1914, pp. 660–662.

allowed? Not because it represents the actual investment; nor yet the present market value. It is taken to indicate the "normal" or competitive value of the enterprise. It is the cost that would have to be incurred in replacing the present service. Now this is not the place to defend or attack such a method of valuation. But if accepted in practice, it could hardly be justified on any other theory. Obviously, then, the cost that is to be estimated in finding "normal value" is cost of service (*i. e.*, cost of replacing the service), and not cost of identical property. For it is the service alone which is of value to the public and which would have to be replaced if the present railway were not there. The difference between cost of service and cost of property may be very great. In the first place, advance in the arts of construction may make it possible to replace the operating capacity at much lower cost than would be required to duplicate the present antiquated structures. In the second place, modern construction, even when the initial cost is no less, may permit of a net saving through reduction of operating expenses, whether in conducting transportation, or in maintenance and renewals.

Within certain limits, this principle of cost of service is constantly observed in valuation practice; as in the case of antiquated equipment, which is valued below replacement cost even when it is still giving some little service. Nevertheless, courts and commissions have not generally accepted either extreme — cost of service, or cost of identical property — but have made something of a compromise, usually much nearer the property basis than the service basis. This policy, in so far as it is at all rational, is dictated by two considerations. First, the engineering difficulties of estimating cost of reproducing the service in the most economical way are

almost prohibitive;[1] second, it is often held that investors should not be obliged to carry the burdens of unexpected obsolescence. But the compromise, if we assume it to be just, does not deny the validity of cost of service as the underlying principle of reproduction cost. It merely makes an exception in view of unusual circumstances. In the main, then, an estimate of the cost of replacing the identical property can be accepted as a basis of fair value, only in so far as it is a rough indication of cost of service.

With this premise as to the general basis of valuation, we may examine the question of depreciation. It is certainly true that if rates were to be based *directly* on an estimate of cost of service, the state of depreciation of the present property would not be considered. For the cost of replacing the service is the same, whether the railroad is new or old. But when the returns are based on cost of the physical property (and this has been assumed in all the previous discussions) the case against deduction for depreciation is not so clear.

Consider two railroads, equal in replacement cost new, and alike in every other respect, except that the one is 50 per cent depreciated, while the other is brand new. If now we accept the proposal to base returns on cost of reproduction new, rather than on cost depreciated, both roads will be entitled to the same profits. But how about rates? Will they likewise be equal? Not at all; the older property, in order to make the same profits, must charge higher rates. For the new railway, simply because it is new, has ahead of it a period of relative freedom from replacement charges — the period during which, according to Professor Young's supposition, it is settling down to a state of "normal"

[1] I am informed by Professor E. W. Bemis, of the Advisory Board, Valuation Division, Interstate Commerce Commission, that no attempt is being made in the federal valuation of railways to estimate cost of replacing the service.

depreciation. Averaging these early low charges with the "normal" ones expected later, we still get lower annual replacement expenses for the new property than for the old. Hence, operating expenses of the newer railroad will be lower to the extent that they are charged with fewer renewals. And as a result, the old road, in order to make an equal return on its cost new, must charge higher rates. It is evident, then, that failure to deduct depreciation would mean a violation of the rate-making principle of replacement cost of service.

It can hardly be contended that business precedent or the conditions of price control in the competitive market have justified investors in expecting such a violation to be made in government regulation. The familiar illustration of the cow is a good one. It has been remarked that in fixing railroad rates, it would be as absurd to take account of the depreciation of the property as it would be to make the price of milk depend on the age of the cow. This may be perfectly true, since it refers to the price. But when the rate of return is concerned, we should need to set up another analogy. We should have to insist that as the cow grows older, the price of milk must steadily rise! The fallacy, then of the argument against deduction of depreciation is that it makes an unwarranted inference from rate of charge to rate of return.

It should be emphasized here that the right of a railroad to earn returns on its cost new would be conceded, even insisted upon, provided only that the rates were to be determined so as to allow no higher annual renewal charges for an old property than for a new one. If, for instance, a piece of equipment with a ten year period of life has already served nine years, it is correct, so long as the equipment gives good service, to allow a return

on its cost new. But if this is done, operating expenses on the tenth year should not be charged with the entire cost of replacement. Yet this, in effect, is what the proposal of Professor Young amounts to. For it assumes that capital charges are the same as at the beginning, while charges to maintenance have increased with age.

In the above illustration, which shows that the older railroad must charge higher rates to earn equal profits, the calculations are based on an even distribution of maintenance charges over early and late years. But it is not at all essential to the validity of the example that any such distribution should be assumed to be made, either on the books of the company or in the rates allowed. For the inferiority of the old road over the new — and this is what is meant here by depreciation — is simply the capitalization of the excessive replacement expenses of the older road. These expenses are to be discounted as occurring when the renewals are actually made by the company. It is quite immaterial how they are carried on the books, or when they are allowed for in rates. That is merely an adjustment between the interests of earlier and later consumers; it does not affect the present worth of these expenses.

But the objection is urged that however immaterial may be the distribution of replacement charges in the future, their distribution in the past is vital. For if early rates were so adjusted as just to care for the actually incurred renewals, then future rates must carry the full burden of the higher renewal charges that are not realized till later. Such an assumption as to early rates is, however, quite unwarranted. As Mr. Davis has pointed out, it is an illusion to suppose that railroads have adjusted rates with a view to "adequate" earnings according to any one basis of accounting.

Maximum profits have been the guide, not "just price."

Professor Young is apparently of the opinion that the absence of charges to depreciation has resulted in lower rates, or better service, during the early years of operation. Referring to two plants, one of which has provided a depreciation reserve, while the other has failed to make any provision, he says, "there is a reasonable presumption that one plant has adjusted its investment, its services, and its rates to a higher scale of operating expenses than the other."[1] But does not the history of railroad rates throw much doubt upon the validity of any presumptions as to the effect of accounting methods upon rates or services? Under the principle of pure competitive price, or even of pure monopoly price, such an effect would be expected. But under historical conditions of cut-throat rate wars in one year, followed by pool prices the next, the effect on rates of the absence or presence of a depreciation charge must have been very slight. Of course it is conceivable that historical evidence, not mere assumption, would justify the conclusion that past rates were insufficient to permit of a depreciation reserve, or an amortization of capital. But if history is to be searched at all, the probe must go much deeper. We must determine, not alone whether rates were too low to charge off depreciation, but also whether they were not too high to merit any present allowance for appreciation, as in the case of land values. A reproduction cost basis, however, asks neither of these questions. Partly in view of the lack of historical record, partly out of regard to the adjustment of present investment values to present conditions, it blots out the past and considers only the present. Every claim to value must be materialized in the property. No deduc-

[1] This Journal, vol. xxix (1915), p. 386.

tion is made for past earnings, however excessive, or for past increments, however unearned. Conversely, no addition is made to the present depreciated value of the property, even tho such depreciation may not always have been provided for by past earnings. Those who oppose the deduction of depreciation are the first to insist that the fairness of past rates must not now be questioned. In reality, are they not themselves questioning it? For they propose to allow a higher value than is warranted by the present physical condition of the property on the assumption that past rates failed to pay their share of the accrued depreciation. Indeed, if the policy of deducting depreciation is open to criticism at all, it must be on the ground, not that it questions past rates, but that it fails to question them. It refuses to be retrospective.

The retrospective or historical outlook is evident in Professor Young's admission that it is fair to deduct depreciation when a public utility has of its own accord already provided an adequate reserve. Yet the replacement cost of the property is obviously unaffected by the past policy of charging off depreciation on the books. And has an adequate answer been given to the objection urged by Mr. Davis [1] that such a deduction would amount to unequal treatment of different companies? The voluntary depreciation policy of any company is adopted primarily in the interests of the investors, not of the public. When any reserve is set aside, it is with the legitimate expectation of earning a larger return than could be earned without it. If now the government deducts depreciation only in those cases where the reserve has been made, it thwarts that expectation. The company that has conserved its capital in the past is not allowed one cent more of profits in the future than

[1] In this Journal, vol. xxix, February, 1915, pp. 370–371.

the company which has disbursed part of its capital in dividends. Certainly this, if anything, is *ex post facto* regulation.

Valuation on the basis of cost new is defended on the ground that there has heretofore been no consensus of opinion among accountants, or even in the courts, as to the propriety of charging off accrued depreciation on the books. Doubtless this is true; but what basis of valuation can be found, which has the sanction of universally accepted accounting practice? Least of all may accounting rules be applied with respect to a reproduction cost theory. For example, the weight of accounting authority and of court decisions, supports the practice of keeping land values on the books at original cost.[1] Yet few would find in that fact alone sufficient argument against the allowance of unearned increment. Moreover, it is hazardous to infer that the failure to set aside a depreciation reserve indicates any failure to realize that depreciation impairs the investment. In many cases, the practice of making no charge to depreciation is due to the expectation that there will be an offsetting appreciation in the value of land and other assets. Of course, a valuation based on reproduction cost *depreciated* gives full opportunity to realize this expectation.

Professor Young has recognized that depreciation reduces the market value of a property, but he states that a valuation for rate-making purposes should be based, not on market values, but on costs. The truth of this statement, however, should not be allowed to conceal the intimate causal connection between market values and costs. The cost of replacing a property depends on the market value of the parts. If any part is depreciated, not only is its value reduced, but the cost

[1] H. R. Hatfield, Modern Accounting (1913), p. 96.

of replacing it, after deducting the value of the extra life of the new part, is also less. As to the property as a whole, regarded as a going concern, the failure to deduct depreciation in rate-making would tend to prevent even market value from being reduced. For the market value of the enterprise depends on profits, and by hypothesis no reduction of profits is to be required.

One possible defense of the cost new valuation is that a new enterprise, tho its early maintenance charges are lower, has the countervailing burden of developing a business.[1] Whatever is gained by lower operating expenses is lost through inadequate gross earnings. In other words, depreciation is held to be offset by "going value." There is a valid point here; and indeed any estimate of cost of reproduction should include the cost of developing a business up to the time when a fair return can be earned. But the amount of this cost is matter for separate determination. It is not at all related to depreciation, and even an approximate offsetting of the one by the other would be a pure coincidence. Indeed, if care is not taken, the amount of "going value" that should be allowed as part of the cost of reproduction will be overestimated. For it is not the developmental expenses actually incurred in the past that are to be calculated, but merely the cost of reproducing a paying business under present favorable conditions of population and wealth. This is one of the few places where cost of reproduction is lower than original cost, and the full benefit of this fact should not be denied the public.

So far, nothing has been said as to the method of estimating depreciation. But if the foregoing reasoning be sound, the amount of depreciation to be deducted

[1] Mr. Allison apparently has this in mind in referring to "theoretical depreciation" as the "cost of establishing business." Report to St. Louis Public Service Commission (1912), p. 21.

should be equivalent to the capitalization of the excessive renewal and replacement charges of an old company as compared to a new one. In other words, it should be an estimate of the amount that the company would theoretically be willing to pay in order to transform the old structure and equipment into new.[1] Strictly speaking, this involves the substitution, not of *identical* new parts, but of the most economical, improved parts. The difficulties, however, in the way of this allowance for obsolescence as distinguished from structural depreciation have already been referred to; and it is not proposed here to discuss them. With reference to structural depreciation, which is the bone of contention in the recent controversy, two conclusions must be drawn from the above position. In the first place, the "straight line" method of estimating the amount of depreciation is quite unsuitable. For the capitalization of the difference in maintenance charges between old and new properties involves a discount for time. Hence the sinking fund method is the correct one. In the second place, allowance must be made for appreciation resulting from "solidification and adaptation." For these items represent the fact that in some respects the maintenance charges of a new road are not less but greater than those of an old and "seasoned" road. The excessive renewal charges of the old property are to that extent offset by certain higher expenses of the newer one.

The present discussion has attempted to show the utter incongruity between cost new and cost of reproduction. It may perhaps be objected that too much stress has been laid upon a strict theoretical interpreta-

[1] Whitten, Valuation of Public Service Corporations (1912), pp. 340–341 calls this basis of estimating depreciation the "present worth method." There seems, however, to be no mathematical difference between this and the sinking-fund method, provided that allowance be made in the latter for appreciation as well as for depreciation.

tion of replacement cost, with the result that consideration of practical justice is sacrificed to an attempt at logical analysis. Certainly the reproduction theory has grave shortcomings. And even those who accept it in the main, recognize the need for modifications, now in favor of the railroad, now in favor of the public. But the refusal to make any allowance for a decline in value due to age constitutes a departure from principles so serious as to subvert the very foundation of a reproduction cost theory. Perhaps it ought to do so. Perhaps the whole notion of a valuation based on the hypothetical cost of replacing the property is absurd. If so, it should be abandoned. But if retained at all, it should not be surrendered just at that point where it is unfavorable to the railroads. Such a surrender is made if replacement cost new is accepted. For it applies *present* unit prices to *past* physical conditions of structure. It allows maintenance charges made heavy by age, while permitting profits from which every trace of age is absent.

When original cost rather than cost of reproduction is assumed as the basis of valuation, the problem of depreciation becomes more complicated. Part of the foregoing discussion is pertinent also to this situation. But it must be conceded that the argument against a deduction is in this case much stronger. The original cost theory involves a retrospective point of view in which a consideration of actual sacrifice takes precedence over a consideration of values. Without attempting a solution to this problem, I would merely raise one further question: would not Professor Young's objection to the deduction of depreciation constitute *a fortiori* an objection to the original cost theory, even original cost new? It is unfair, Professor Young thinks, to deduct depreciation, because investors have

been given no reason to anticipate the deduction. On the same grounds, then, would it not be unjust to adopt an original cost method, which makes no allowance for appreciation in the value of the property? Investors have been given at least as much reason to count upon a return on these higher property values as to expect a return based on costs undepreciated. Over and against the early court decisions cited by Professor Young as disapproving of the practice of charging off depreciation, must be placed the long series of decisions in favor of replacement cost. Here, then, are two horns of a dilemma: either original cost new, or replacement cost depreciated. Professor Young would reject the latter, as involving *ex post facto* regulation. Must he not on the same grounds also reject the former?

It is not fair to conclude, however, that the objections which Professor Young raises are unreal. The dilemma is a creation, not of false reasoning, but of conditions as they exist. No solution of the problem of valuation as applied to hitherto unregulated utilities can wholly avoid doing injustice to some investors. At best, there must be a compromise. But I submit that replacement cost depreciated, whatever may be its defects in other respects, is less subject to the particular objection of *ex post facto* regulation than is the alternative of original cost undepreciated.

JAMES C. BONBRIGHT.

NEW YORK.

REVIEWS

FETTER'S ECONOMIC PRINCIPLES[1]

THIS is the first of two volumes. In it Professor Fetter sets forth the essentials of an economic theory. "The facts, theories, and public policies relating to money, banking, international trade, labor organization, the trust problem, taxation, insurance, etc." have been reserved for discussion in a second volume.

In his *Principles of Economics*, published in 1904, Professor Fetter undertook to incorporate what he conceived to be the significant results of much critical discussion since 1870 and "to modernize economics." In his own language, "the present text . . . seeks to carry forward to their logical conclusion the ideas of that part of the earlier book which dealt with the fundamentals in the theory of distribution" (p. vii). Comparison of the new book with the older shows a considerable reorganization of the materials over and above the reservation of practical problems for discussion in a later volume: much amplification of the earlier presentation, the employment of a number of new terms in addition to those earlier introduced, a new tho not essentially different treatment of enterprise and profits, a fuller statement of the capitalization theory of interest, a separation of the dynamic from the static theory, and a discarding of the old for the modern volitional psychology. This new statement of the author's economic theory must be regarded as the strongest challenge yet issued to the more conservative economists who have been content with an eclectic interpretation of economic affairs.

In the first five parts of the book Professor Fetter deals with "the personal, acquisitive, aspects of value"; in Part

[1] Economics, vol. i: Economic Principles. By Frank A. Fetter. New York, The Century Company, 1915. Pp. x, 523.

VI, with the social welfare aspects of the dynamic changes in economic society. In more detail, in his static treatment he deals with "values" and their commercial and price aspects, discussing in turn the "Elements of Value and Price" (Part I), "Usance and Rent" of goods (Part II), "Valuable Human Services, and Wages" (Part III), "Time-Value and Interest" (Part IV), and "Enterprise and Profit" (Part V). The dynamic changes dealt with in Part VI relate to population, decreasing and increasing returns, material resources, machinery, waste and luxury, and saving.

It is, then, with value and price that the greater part of *Economic Principles* has to do. The matter unfolds in a straightforward manner. The "quality of importance which things have when they are the subjects of choice is *value*" (p. 19). Things have importance because of the "psychic income" which may flow directly or indirectly from them; and because of the law of "diminishing gratification" the degree of importance depends, other things given, upon scarcity. Consumption goods yield "psychic income" directly, other goods indirectly. The latter are consumption goods in the making, technically one or more steps removed. To give value to things they are manipulated with respect to stuff, form, place, and time. Price ("the good given by a buyer in a trade") whether money or something else (p. 45), proceeds from the valuations made or held by those who bargain. Because of the desired "psychic income," goods may be bought outright at a price, or, in the case of "durative" goods, their possession and use alone may be purchased for a period of time, possession to be restored to the owner according to the terms of the rent-contract. If purchased outright, the "usance" is secured thenceforth with only the expense of up-keep and the like. If the use or "usance" is purchased for a period of time, the price paid is *rent*, be the use-bearer land, a house, a costume, or any other piece of property. In other words, "rent" is "the price paid for the temporary possession and use of a more or less durative agent which is to be returned to the owner at the end of the specified period" (p. 155). This price usually includes an excess over

true rent — the "price of the true usance" — "to cover repairs, wear and tear, services of the owner in preparing and taking care of the use-bearer, collecting the rent, etc." (p. 156). To be placed over against objective goods or wealth are human beings who contribute economic services. They contribute directly or indirectly to psychic income and their labor is valued accordingly. Wages are affected by the conditions for efficient labor, difficulty in preparation, risk, etc., and in reckoning them due allowance must be made for other things of importance in connection with the laborer's "psychic income."

In this unfolding of values, interest next appears. Time enters and must be allowed for in valuation. While not universal, an over-balancing time-preference does exist for the present because of instinct, moral weakness, bad perspective, hope for the future, risk connected with goods, and risk connected with life itself. This time-preference pervades the entire economy. It finds expression in the repair and use of goods and in the choice of technical processes, as well as in market relations. It enters into the valuation of the uses of "durative" direct goods, say dwellings and pianos, as well as of the uses of durative indirect goods. The round-about technical processes are not a cause of time-preference; "mere technical indirectness *per se* has nothing to do with time-value" (p. 258). All things of the future have values discounted according to the rate of time-preference. As a result of capitalization of incomes (employed in an inclusive way) we have "capital." "Capital is any right to prospective income that can be capitalized." "It is an expression of a person's business power in terms of money, being the estimated price (with reference to market conditions) of the person's rights to income" (p. 267). It includes houses, furniture, and personal belongings yielding only personal enjoyment, and even credits. Time-price antedates the making of loans, which are only one form of capital. In connection with loans we have interest, which is due to time-preference. It "is the amount paid and received according to a contract for credit in terms of money" (pp. 301–302).

Like rent, interest includes an excess over the net rate to cover such things as risk, the trouble involved in making and supervising loans, etc.

The values of economic goods, whether used directly or indirectly, whether "consumptive" or "durative," whether bought and sold or used without exchange, unfold in this way. All trace back to "psychic income" as the ultimate fact in this static treatment; and where the time element enters into the situation, it must be allowed for because of time-preference. "Rent" is defined in the language of the ordinary man and so is "interest." Jointly they do not cover the incomes from property, the one income from natural resources, the other income from produced wealth. They arise in different connections and lie in different planes of thought. The term "capital" is employed in a very inclusive way. It is an investment concept.

Profits remain to be defined and explained. They are non-contractual in character, and in a broad way include all that remains to him who is in control after all bills resulting from contracts have been paid (p. 343). Less broadly they include what is left after bills contracted have been paid and other items capable of being estimated have been allowed for. "Pure profit" is an "investment profit" (p. 344). It is illustrated in the case of a corporation: "out of gross receipts must be paid all rents, interest, maintenance and depreciation of plant, price of materials, wages, salaries of managers and officers, fees of directors, etc.; the residue is the amount which may be paid as dividends to stockholders (or added to surplus) without impairing the capital investment" (p. 345). This investment profit has a dual character or contains two elements — one corresponding to the rate of interest on the safest loans (say 4 per cent), the other (it may be negative) the gain "attributable to the exercise of pure-investment function, that is, pure investment profit" (pp. 345–346). The investment function carries with it chance gains and losses and involves the assumption of risk. Profits arise, also, in connection with changes in transportation and in land-values, honest and dishonest speculation, monopoly-control, etc.

It is unnecessary to say anything concerning the several chapters in Part VI relating to changes in economic society, further than that they give the reader an excellent discussion of the various subjects to which they relate.

Thus far the reviewer has attempted to present in summary form the essentials of Professor Fetter's theory as set forth in this volume, and, more particularly, the parts in which points in controversy are involved. The volume contains a wealth of diagrams and illustrative detail. In so far as mere detail is concerned, the discussions in many of the chapters excel those to be found elsewhere. There are, however, a few instances where exception might be taken. Thus, in the discussion of the values of stocks of goods, after the marginal principle has been explained, the reader is told that the "total value of the stock" is "the product of the value per unit by the number of units" (pp. 39–40). In a footnote (p. 39) it is stated that this is true only when it is possible to "choose among the units and to apply them to various uses in such proportions as one will," and that "if another person controls the whole stock and compels us to choose 'all or none' we may be forced to value the whole stock according to our more intense desires." Using the term "utility" in the more usual way, and not in Professor Fetter's, why, it may be asked, should not the valuation be based upon the total utility of the stock? In Chapter 8 there is no discussion of price where the monopoly controls the market for what it buys; but in view of the statement that "it is in the sale of the products of a business that the most important problems of monopoly are found," perhaps the author is of the opinion that it would not be worth while. This opinion the reviewer does not share. Again, the author seems not to employ the expression "direct use" consistently (compare pp. 30, 91, 113, and 114). The book, however, offers few opportunities for "picking flaws" of this kind.

Coming to really important matters, a number of questions arise in connection with Professor Fetter's use of terms, his denial of the propriety of the old distinction between natural resources and capital, his theory of interest, his treatment of costs, and the division of the discussion of the principles into

statics and dynamics. What of his attempt "to modernize economics" in these respects? Any expression of views in this connection must be brief.

The reviewer prefers to speak of valuations where Professor Fetter employs the word "value." The author's use of the word "utility" as the correlative of "welfare," and the substitution of the word "gratification" for the word "utility" as commonly employed by economists, seem desirable. In the opinion of the reviewer, the terms "wages," "interest," "rent," and "profits," on the other hand, should be used in the way they have been employed by those who believe in "a modernized Mill." We wish to explain how what is produced is shared among those who own property and those (perhaps the same persons) who actively engage in its production. In doing so it would be confusing to use the term "profits" so as to include the first of the two elements noted above. The use of the other terms mentioned, wages excepted, should turn largely on the decision as to whether a distinction should be made between natural resources and capital. Professor Fetter in his discussion of the deterioration and renewal of lands in use and of the additions to the economic supply, has made as strong a case as can be made against the old distinction. Yet, in view of the situation as regards urban sites, sources of power, mineral sites, and even agricultural lands, the reviewer is of the opinion that merely because of the difference in the degree of control over the economic supplies, the distinction between natural resources and other wealth should be retained. It is important to do so to explain facts as they are, and to secure a basis for investments and for public policy involved in legislation relating to ownership, taxation, etc. If this is true, the definition and treatment of rent should take the form of a modernized Ricardian doctrine. In explaining the fact of time-preference, the reviewer would side with writers such as Seager and Brown who have argued the case with Fetter and Fisher. Physical productivity must be given an important place in explaining interest. As regards its form, interest is at times a matter of a loan rate, at other times a matter of a quasi-rent.

Professor Fetter's treatment of money costs in relation to prices is that made familiar to all by the Austrian economists. It is essentially sound. But the question may be raised whether the relation between sacrifice costs and scarcity has been adequately discussed as touched upon in various parts of this volume and more particularly in Part VI.

The question may also be raised whether Professor Fetter's division of his principles into statics and dynamics, and the postponement to Part VI of the discussion of most that pertains to economics and social welfare, will prove helpful. In his teaching experience, the reviewer has found it most satisfactory to introduce most of the topics discussed in Part VI early in a general course in connection with consumption and welfare and the problem of production.

The opinions above expressed are explained of course by the fact that as a student of economics and primarily of things other than value, price and distribution, the reviewer, fortunately or unfortunately, has become convinced of the substantial truth and value of what Professor Fetter would say is to be found in "a modernized Mill."

Finally, all questions of organization, terms, and correctness of theory aside, a word may be said with reference to this book as a text for college classes. It is well written, requires the most careful reading, and, with volume II, will serve for a year's work in a first course. It should be much more satisfactory where used by upper classmen than by freshmen and sophomores. The former have a fairly good knowledge of social and economic institutions and may be expected to work through the earlier chapters, which do not make a strong appeal to the "beginner"; the latter should have more concrete and descriptive material. It is not likely to appeal to those students in engineering and other professional schools who are enrolling in the first course in economics in increasing numbers.

H. A. Millis.

University of Kansas.

COMMONS AND ANDREWS' PRINCIPLES OF LABOR LEGISLATION [1]

THIS is undoubtedly the most notable work upon its subject that has been written in America. For the first time scholars have seriously analyzed innumerable laws and their working and have compared them with their counterparts abroad and produced a book for the guidance of others. Anyone familiar with continental text-books like those of Bry and Pic will appreciate the kind of book in question. From such works it differs most in its natural emphasis upon American law and laws and in its commendable directness and compactness. These qualities justify its desire to help the plain citizen — who unlike the student reads not compulsorily but of his volition.

Great care has been taken in the selection and orderly presentation of material. College teachers who have been referring their students to a dozen books for acquaintance with the world's chief laws will be deeply grateful for this volume. Some of the laws have been nowhere so effectively described. There is generally a history of the steps of legislation, the provisions of important laws are stated with elaborateness, and the more pointed court interpretations are almost invariably given. More or less is said of what things employers and employees desire and oppose.

Both authors bring to their study an established interest in democratic movements for legislation. "In a democracy it is the people themselves whose collective opinion finally determines what the laws shall be." The collective opinion is to be touched through "the citizen and the student" by formulating "fundamental principles which may be generally applied." "Throughout it is the *principles* of labor law . . . which are emphasized." The book's title and such passages as these in its Preface are tempting; and they sug-

[1] Principles of Labor Legislation. By John R. Commons and John B. Andrews. New York: Harper and Brothers, 1916. pp. 524.

gest a more philosophic treatment than a manual would give. Should we have legislation? Why? How much should we have? Why? Of what sorts? Why? Unless he can deal with these questions the way is thorny for whoever tries to persuade the unpersuaded. In a book intended partly for the citizen there is of necessity no place for highly abstract reasoning. Similarly, altho the great problems of human policy reach off into the controverted realms of ethics and of politics, there need be here no excursion into those realms. A nearer ground exists in which pragmatic tests of reasonableness avail. In the present review no attempt is made to give a summary of the book's contents, nor to deal with minor issues of opinion and fact. I desire rather to point out what a study of principles seems to entail and how the present book accords with what seem legitimate expectations.

The initial chapter, entitled "The Basis of Labor Law" tells how the free laborer and the permanent laboring class emerged, what the rights of individuals are and by what legal principles they are safeguarded. Much of this is finely explicit and clear. Partly it is over-concentrated. The notion, for instance, of the "free" laborer (pp. 2, 3) should be made clearer, since the task of the volume is to show how his life may become less constrained. The rights and principles discussed turn upon the Declaration of Independence and the constitutions. For a study of the principles of American labor legislation such a treatment has obvious value. But since much of the book deals with foreign laws, enacted to deal with situations similar to those of the United States, a better procedure would seem to be to discuss broadly the universal grounds for legislation and only then to introduce the American viewpoint whose rationality is not obvious. All men are equal and therefore have equal rights — but equality seems insufficiently defined and different state constitutions list different rights; certain rights are inalienable — yet this phrase has to be interpreted to mean "alienable but protected." Since rights have been so fundamental in legislation, since no concept is more loosely used on the platform and in the press, since such a phrase as "the right to labor" has

been so notable in labor movements and we hear so much today of "the right to a living wage," it is regrettable that the argument does not go farther. Numerous allusions to rights, elsewhere in the volume, while they throw some light, chiefly accentuate the need for an ampler earlier statement. The reader infers readily that rights are modifiable and he is told in so many words that some important American rights have proceeded from amendment of the fundamental law and from judicial readings. The recent literature of ethics and jurisprudence contains much that one would like to see reflected here. Our fundamental laws grew out of a *laissez-faire* philosophy. The new social tendencies conflict with the philosophy so as to produce a kind of legal hypocrisy. We wish to restrict child labor because child labor is bad for the child. A good constitution would here see and approve a general principle. But we can enact the law only on the ground that interstate commerce needs to be regulated anew. We would protect match-workers from "phossy jaw." The Constitution gives to Congress the power to raise money to pay bills. Congress taxes the match industry by a law that would be regarded as a failure if any revenue were collected. By such strange justifications we can enact desirable laws, but in the circumstances the Constitution hardly remains a good instrument through which to begin a study of general principles of legislation.

A labor law is set forth to be one which protects the labor contract (Chapter I). It has long seemed to me that such a definition is needlessly narrow. The "laboring class" includes large groups of individuals who have no employer but are in most other respects placed as are the employed. I refer especially to the host of small tradespeople, independent artisans, cash and share tenant farmers, fisherfolk, peasant proprietors even who in some places are a veritable proletariat. Commons and Andrews' second chapter, dealing with "Individual Bargaining," and having in mind the laborer as debtor, creditor, tenant and competitor, cannot escape touching one or two of these groups. Some of the measures dealt with in this chapter — imprisonment for debt, home-

stead exemption, loans to farmers, legal aid — have the larger scope; so have many measures later considered. The difficulty is more serious when, as in the chapter on health and safety, a great problem is presented which only incidentally turns upon the labor contract. There we are told that when the workers are independent they can control their working conditions. But since the industrial revolution they have "toiled upon premises controlled not by themselves, but by another — the employer" (p. 295). But this argument for legislation fails to note that safety and health depend not only on control but on technical knowledge and willingness to provide against risks; the worker is deficient in both. If all workers were independent the problem would doubtless still have to be managed by legislation. So it is not surprising that tenement house work which "is done by the family group in its customary living-quarters" (p. 336) usually evades the rules of health.

This second chapter illustrates well what seem to be both the strength and the weakness of the book. There is a survey, singularly inclusive in its brevity, of the characteristic laws concerning wage payment, agricultural, immigrant and convict labor, and industrial courts. The telling features of the laws of various countries and many states are adduced. On the other hand, there is little evaluation of laws. There is almost no attempt to say what circumstances make for the fitness of one or another kind of law. It is commonly not clear which law is to be approved, if any. A section on the conditions of hired labor in agriculture is included but the section on agricultural labor legislation barely hints at appropriate measures for this problem, and is merely descriptive of other measures. A more definite position is argued on prison labor. On the other hand, tho Mr. Commons has written one of our best books on immigration, it cannot be inferred from the text that the measures of restriction here described are those which should be enacted. Such inconclusiveness and lack of pointed argument, such an absence of constructive reasoning in the way of measures not hitherto enacted is common in this volume.

No better writing in point of balance and incisiveness is contained in the book than that which describes the law of conspiracy in its relation to collective bargaining. The question of rights reappears and again one wishes that the previous specific discussion had been ampler. The wobbling of the courts in their attitude toward strikes introduces a discussion of principles in which the authors' sympathy occasionally shows, though conclusions are not presented. For lack of argument these sections would not guide the next judge in the next strike. The discussion of boycotts and of picketing also brings no specific recommendations for legislation. The authors' general attitude appears in a section headed the "justification of true collective bargaining." These five pages are the most important in a chapter of seventy-five. "Complete freedom to combine" they hold "should be given to both employers and employees." And again, "It is in the interest of the public that the most favorable conditions of labor shall prevail. Since labor constitutes such a large part of the public, the general welfare depends intimately upon its advancement. While the public suffers from high prices, it benefits from high wages." Any excess of advantage that organized laborers might secure would be held in check by organized employers.

It is at such a point that the plan of the book seems most open to question. No one could ask for abridgment of the descriptive and expository sections. But the crucial discussion of principle is all too brief. If trade unions tend to standardize working terms, they are so far good. But can the organized employers neutralize the possible gains of a monopoly union? Not necessarily. Technically, as the authors say, unions "have nothing to sell" (p. 116); yet such is their power that labor contracts are not concluded till unions have fixed the terms. One set of laborers may tie up a complex industry completely. A railway may hold it cheaper to raise the wages of its engineers than to stop transportation. The public would pay. If all organized workmen were to secure higher wages, would not all unorganized workmen be worse off because of higher prices? And if all workmen were

organized would there be any effect upon wages apart from standardization?

Again, the coal miners may ask for an increase. The operators may presently grant the increase and lift the price so that a monopoly wage and a monopoly price would both result. So A and B, employer and employee, oppress C, consumer. The state is asked to acquiesce if A and B are equally strong. Once more, is standardization of working conditions secured through collective bargaining better than through legislation and administration? Later (p. 246) it is held that where trade unions cannot regulate the hours of labor of men the state should do so. But nowhere apparently is there a comparison of the two methods worked out, altho upon the results of a comparison may depend the degree and sense in which the state encourages collective bargaining. If it should be the case that indefinitely only some workmen will be strongly unionized, and if through influence on prices that should redound to the disadvantage of other workpeople, then perhaps comprehensive legislative regulation of wages might be a better policy than the encouragement of trade unions. In theory such a course is not fanciful. It need only be recalled that a stock argument for compulsory insurance is that too few persons are reached by the mere encouragement of voluntary measures — the English friendly societies had even a much wider membership than the English trade unions have, when compulsory insurance supervened.

In the treatment of mediation by government in collective bargaining there appears again an admirable survey of the existing kinds of legislation. The merits and demerits of our state laws are not discussed and we are not told why the Erdman act was superseded; an untouched field for federal legislation exists, but we are not told what form this legislation should have. An analysis of the Australian measures in about fifteen pages is by all odds the best brief discussion of those laws which I have seen. Compulsory arbitration is opposed. Laborers do not want it; employers do not. Only "the immense but miscellaneous class of unskilled and semi-skilled men, and of women and children" would gain — a

rather important group. But the public gains too. Anyone who has read the statistics of the collapse of employment in the great branches of British industry during the coal strike of 1912 must see that the public are not the only consumers of products who must suffer during a strike, and that unorganized workpeople are far from the only ones who would gain by the prompt adjustment of a dispute.

The argument for the minimum wage turns largely upon the absence of organization which itself tends to be explained by the overcrowding of occupations by young, inexperienced, often temporary workers. Both in Australia and England, however, later developments have carried the law far beyond its first intention and in Australia at least rulings cover many industries in which wages are not low in the sense which this chapter initially outlines. When the wages bill is small, and when abnormal — almost pathological — conditions of living exist, the evidence as to wage increase, as in the English chain-making industry, seems reliable. But the general evidence on page 191 is open to criticism. Lately, perhaps because of the decline of immigration in war time, New England textile mills announced a ten per cent increase in wages; had a wage board decreed this increase, it would have seemed as good evidence of minimum wage effectiveness as any evidence here given. The most extraordinary enactment as yet is the English coal mines act, involving a million workers, but the effect, apart from some standardization of working conditions has so far been disappointing. In general, the reasoning in this chapter concerning effects has a *post hoc ergo propter hoc* character which, in the complexity of social problems, is dangerous. The minimum wage is an extremely interesting experiment which I think can do little harm and I hope and believe will do good, but no advantage will come from the over-statement of its benefits. There is a good discussion of constitutionality but questions of right (the right to a living wage, and to a family living wage) are here omitted.

At the very end of a chapter on hours of labor reference is made to " the need for a system whereby permanent bodies will be authorized . . . to fix varying hours of labor on a

basis which will adequately protect the health and welfare of the employees and the state." That hours of labor should vary is then a main principle of social policy. It is a pity that this position was not taken in the first paragraph and then amply explained and defended. Not that one would desire the disappearance of sixty compact pages of survey of legislation — they are too good to be lost — but one could read with a sense of direction. With trade unions the demand for shorter hours is often a veiled demand for higher wages; this, since health is the issue, should make us skeptical of them. The "eight-hour day" slogan may arouse a natural sympathy for some workers if no other agency is at hand to regulate hours; but it is a pernicious slogan if its seeming desire for equality covers and perpetuates real inequality. Much more should be made of the tendency of shorter-day regulations to exaggerate the pace of industry. *Chi va piano va sano, chi va sano va lontano.* Life loses its poise and wholesomeness when men rush for one-third of the day and try to regain their balance in two-thirds, as seems to be the case in such a place, for example, as Butte. Perhaps such a chapter as this, dealing with the problems arising from the length of the working day, should discuss the related problem of scientific management, a device in which the state, as employer at least, has an interest. That legislation has not been enacted may be the best reason for discussing principles of legislation.

The chapters on "Unemployment" and "Social Insurance," especially the latter, suffer from brevity of treatment. Social insurance appears to be taken to mean "insurance *by* society." I had, perhaps wrongly, supposed *Sozialversicherung* and *assurances sociales* to be alternative to *Arbeiterversicherung* and *workmen's insurance*. The insufficient incomes of men are held to explain the failure of voluntary associations; state control and subsidy are inadequate; so compulsion and a tax on employers are necessary. One cannot help feeling that much of the reasoning here, including that on division of costs (this is supplemented in the book's last chapter) is too simple. Would a related reasoning call for compulsory labor

exchanges and other applications of the compelling power to labor problems? It is natural here to speak of compulsory institutions because notable laws provide them. One feels, for instance, that if St. Gall and England had not legislated upon compulsory unemployment insurance, this book, altho a constructive work, discovering and applying principles, might not have gone beyond a consideration of voluntary insurance. In the present chapter the difficult problems of malingering and other fraud or demoralization are not seriously discussed; nor are certain ulterior consequences of a traceable sort.

The concluding chapter is on "Administration." It has a clear sense of its problem and appears to rest on sure ground. Especially well managed is a section on "coöperation by pressure," which sketches certain fundamental notions that deserve elaboration.

It is as a study of principles that Commons and Andrews' book falls short of expectations. What it says about principles has been said before and as well. Principles should point to laws, rather than be inferred from them. Legislation is only the agent of social policy, which first envisages its problem and then asks how desired changes may be secured. So much is not novel to our authors but they seem to have underestimated its importance and made their book, in contrast, a survey of the forms of labor legislation. Pigou's book on industrial peace begins with the declaration: "The problem of this book is ethical — to determine what principles and methods ought to be employed in the settlement of industrial differences, rather than to describe those which are employed"; such a procedure warrants the use of the name "Principles" in a title. In the book of Commons and Andrews the reader often feels that one law is commended as much as a different one, or the authors seem neutral and unwilling to commit themselves. Skilfully selected excerpts from court utterances are made, or the intentions of different laws are set forth, but no recommendation based on principle follows. If principles do not guide they are not worth writing a book about. It ought to be possible to reduce the main principles

of each chapter to a set of propositions and each of these should have been demonstrated in the text. The principles so presented should stand in a clear relation to the larger principles set forth in an introductory chapter. Such a procedure would demand a bolder wrestling with serious difficulties than has been undertaken, but a contribution to principles would more probably result. Where a principle cannot be developed, so much should be explicitly stated.

I should be sorry if my comment seemed to unsay the praise with which the review began. The positive excellences of the book are many. As a text it makes an admirable basis for class discussion; students find it direct, clear, interesting. Its inclusion of detail will necessitate revision every few years, but I do not expect it soon to be superseded as a class text. And if its title had not stressed principles I should have written a different review — and a shorter one!

ROBERT F. FOERSTER.

HARVARD UNIVERSITY.

NEARING'S INCOME; KING'S WEALTH AND INCOME

That two books[1] dealing with the distribution of wealth and income in the United States should appear in one year is in itself significant. There is no field of economic inquiry more in need of tilling. We know just enough about the real facts to be certain of their tremendous import. We are conscious of their dramatic quality, of their possibly tragic significance for the future of our economic civilization. But our knowledge lacks precision. The facts are beclouded by a haze of uncertainty, they have no vividness or compelling

[1] Income, an Examination of the Returns for Services Rendered and from Property Owned in the United States. By Scott Nearing, Ph.D. New York: The Macmillan Co., 1915. (Pp. xxvii + 238.)

The Wealth and Income of the People of the United States. By Willford Isbel King, Ph.D. New York: The Macmillan Co., 1915. (Pp. xxiv + 278.)

power. We know that a very large proportion of wealth and income is in the hands of a very small number of people. But we know little of changes and tendencies for better or worse, and we lack those subtle but perceptible symptoms of health or disease and those illuminating question marks, pointing the way for inquiries into causes and remedies, which definite and detailed statistical information would give us.

Most of all, of course, we need more and better statistical raw material. The statistical yield of our federal and state income taxes (and of other taxes, too) needs to be properly tabulated and critically analyzed. Our census statistics of wealth are the most complete that any country has, but they fall far short of telling us what such statistics ought to tell. Probate records ought to be made to yield up their secrets. Such tasks must be left to government bureaus, or, better, to a combination of public and private (coöperative) activities. In the meantime the best thing that can be done is to utilize the sources of information that we have. The accumulation of raw statistical facts has been slow, but the work of criticism and analysis has been even more laggard. We shall not deserve better materials until we have done our best with what we have. Books like those here under review should be welcomed in so far as they marshal available facts in a field which is too largely given over to blind guesswork and unproved assertion, and in so far, moreover, as they point out the gaps in our present knowledge and set problems that may lead us to insist upon a larger and more dependable body of information.

Despite these general considerations, however, it is a pity that Dr. Nearing has thought it worth while to write his book on *Income*. I have not read all of Dr. Nearing's books, but of those I have read this is distinctly the least satisfactory. The fine and wholesome faith in the possibilities of constructive measures for economic betterment that permeates his *Social Adjustment* is absent from this new work. In its place there is the purpose to paint the iniquities of the existing economic situation; and the spirit is bitter. It is the sort of

thing which might have a tonic effect if only it were carefully done. Our prophets of social progress may, if they will, be a little careless of scientific standards of statement and analysis, but we hold our Jeremiahs to strict account. To put the matter plainly, Dr. Nearing's book is not carefully done, and it falls woefully short of the standards that must be set for work of its kind.

The keynote of the book is the distinction between "service income" and "property income," that is, between income from present exertion and income from property. This distinction, Dr. Nearing insists, is the only classification of incomes useful in the general theory of distribution.

> Theoretically, the old division of income into rent, interest, wages, and profits is indefensible when applied to the economic conditions now prevailing in the United States. Practically, such a division finds no counterpart in the conduct of present-day business. There is no shadow of justification, either in theory or in practice, for the further use of this outworn terminology. The division of total income into service income and property income meets every demand of both theory and practice. Theoretically, there is a clearly marked line of distinction between that income which is derived from the rendering of services and that which is derived from the ownership of property. Service denotes the expenditure of energy. Property ownership bespeaks a legally established right. Service and ownership are two essentially different concepts. Furthermore, an examination of the various forms of income (using that term to mean a flow of purchasing power) fails to show any share of the income fund which does not fall within this classification. Modern accounts are so kept that the sum paid for services (compensation) is readily distinguishable from the sums paid to owners of the property (interest and dividends). The substitution of the corporate form of business organization for the one-man business and the partnership, has resulted in the virtual elimination of every form of income save these two.[1]

The distinction between these two sorts of income is, of course, of fundamental importance. But when Dr. Nearing implies, as he does in more than one place, that its importance has been missed by the economists, he misinterprets the whole meaning and significance of their treatment of the

[1] Pp. 154, 155.

theory of distribution. From Adam Smith down, the distinction on which Dr. Nearing puts so much stress has been a commonplace. More sharply drawn after the French followers of J. B. Say first clearly differentiated interest and profits, it has given color to a large part of the discussion of the theory of rent and has been kept prominently in the foreground in the discussion of the theory of interest. If most economists have preferred to divide property income into sub-classes it has been merely because they have thought that there was something to be gained by so doing. Even those recent systems of theory in which some of the old lines are blurred have left this fundamental dichotomy virtually untouched.[1]

This does not mean, however, that most economists would draw the line between the two sorts of income just where Dr. Nearing draws it. Dr. Nearing puts wages and salaries into one category; interest, profits, and rent into the other. There are a few who, like Professor Fisher, might emphasize the laborer's "property" in his own powers; there are many who would find some measure of "property income" in the sums actually paid as wages and salaries; there are yet more who would find a rather large amount of "service income" in Dr. Nearing's "property income," especially in profits. May it not be possible that the reason why Dr. Nearing finds his classification faithfully reflected in modern accounting practice[2] is that his line of demarcation is rather carelessly drawn?

Just how the income categories of the business world fall into these two divisions is a matter of much practical importance, both for such statistical inquiries as Dr. Nearing attempts and for the framing and administration of tax laws. Dr. Nearing neglects the long-continued discussion of this problem in England, which began with a famous controversy

[1] Dr. Nearing's book is dedicated "to three men who grasp the real significance of the conflict between service and property income, — Joseph E. Cohen, J. A. Hobson, Edwin Cannan." Taking the book itself as context, this seems to misinterpret the views of Mr. Hobson and Professor Cannan. Any orthodox Marxian socialist would have been a more fitting dedicatee.

[2] Dr. Nearing exaggerates the extent to which modern accounting separates the labor bill from other operating costs.

in which J. S. Mill took an important part, and which was vigorously renewed at the time of the recent differentiation between "earned" and "unearned" income in the English income tax.

The greater part of the book is devoted to statistical inquiries, and in particular to an attempt to determine the amounts of money income in the United States that go to service and to property, respectively. Dr. Nearing's use of statistical material is in most respects fair and impartial, altho, of course, he does not attempt to do more than to analyze the available figures in the light of his own peculiar definitions of service income and property income. But there is no attempt at a really critical use of statistics, and at a number of points there are slips. The most serious of those I have noticed is an overstatement (p. 37) of the net amount paid in dividends by American railroads by $169,000,000, or 58 per cent.[1]

Dr. Nearing makes considerable use (pp. 124, 138) of the figures for total corporate capitalization reported to the Commissioner of Internal Revenue under the Corporation Tax Law, but without allowing for the very large amount of double counting in these statistics, resulting from intercorporate holdings. And he interprets this exaggerated amount of merely nominal capitalization as representing an equivalent amount of "potential income-yielding property." Not content with this, he also includes the aggregate amount of public indebtedness and the value of city real estate in his estimate of total income-yielding property, without deducting for the portion of such property which is held by corporations. There are other errors of this general sort, but these are possibly the most glaring.

Much space is given to the manœuvering of statistics which throw no light on the problem Dr. Nearing sets for himself, but which may easily create a false impression. Such, for example, are the figures showing the proportion of the service

[1] There is a similar, but much smaller, overstatement of railroad interest payments. The figures quoted by Dr. Nearing include intercorporate payments, and were not obtained from the table he cites as authority, which gives the correct figures.

income paid in manufacturing establishments to the gross value of manufactured products and to the value added by the manufacturing process. Indeed, it is not easy to discover any purpose in the larger part of Dr. Nearing's statistics. His figures show, of course, that the ratio of service income to property incomes is different for different industries. But Dr. Nearing is not interested in these differences. He passes his statistics under formal review, and then contents himself with this general conclusion:

> It is neither practicable nor is it necessary to fix the amount of property income paid at five, six, or seven billions annually. The significant, vital fact is that property income payments are being made, and that these payments must be reckoned, not in hundreds of millions, but in billions.[1]

A few pages devoted to a summary of the outstanding facts in the situation would have bolstered up this conclusion quite as well as do Dr. Nearing's detailed statistics, with all their misleading appearance of careful accuracy.

But Dr. Nearing's statistics will stand scrutiny better than will his economic theories. At the outset he sketches a theory of distribution in terms of "monopoly" — a term which he deems synonomous with "scarcity." The old categories are used, and there is this frank statement: "The wages of labor are returns in proportion to monopoly in exactly the same sense that the interest on capital and the rent on land are returns to monopoly."[2] But on the next page the new classification is introduced, and with it another theory of distribution. "The capitalist and the landlord receive returns for the ownership of property." "The laborer receives returns for the expenditure of effort." These incomes still "vary with" monopoly power, but the new names carry us away from that principle, and we are not surprised to find productivity finally imputed to labor and to labor alone. The receivers of property income are dubbed parasites, and the whole bulk of property income is viewed as a disposable surplus, available for distribution to the

[1] P. 152. [2] P. 16.

workers, and destined to be the bone of contention in a class struggle. All this has a Marxian ring, but it is so naïve, so superficial, that it hardly rises above the level of street-corner socialism. There is nowhere the slightest attempt to reckon with the problem of the necessity and permanence of property income. In fact, I fail to see why Dr. Nearing does not round out his doctrines in a really consistent manner, by including in his property-income category the money that goes for the replacement of capital, thus making the whole social dividend, over and above current wages, a disposable surplus.

Dr. Nearing's theory of distribution, extravagant and superficial as it is, is nothing new. But the least defensible thing in the book is, I fear, his own. This is an attempt to picture property values as entrenched behind legal bulwarks, exacting tribute as a government exacts taxes, gathering income as a matter of right and of law.[1] Recent developments in the control of the income of public-service corporations are interpreted as inspired only by the purpose to guarantee a *minimum* income to security holders, and, through vague allusions, the impression is created that these developments cover the whole field of corporation activity. Business enterprises, hazards, losses, do not appear in the picture. The enormous mass of past investment that yields no current income is ignored. Property income is made a derivative of existing property values.[2]

It is not a pleasant task to review a book which has to be ranked so far down the scale as this one. That Dr. Nearing's views are extremely radical makes the reviewer's task more difficult. To guard against misunderstanding I must say, in conclusion, that the fault I have to find with the book

Quite in line with this is Dr. Nearing's assertion that property income is more certain and more stable than service income. The facts, I am very sure, are the other way.

[1] And, Dr. Nearing says, "All of the property which might be made to yield an income has not yet been assessed and placed upon the books" (p. 119). I am not sure that I understand the real inwardness of this new way of creating income. In part, however, it seems to hinge upon the fictitious importance Dr. Nearing attaches to par values, and in part to his refusal to reckon with other than money incomes. Thus, if two householders should exchange dwellings and should pay rent, each to the other, "property income" would have been created.

is not that it is radical, but that its statistics are carelessly put together, its theorizing is superficial, and its radicalism lacks any constructive or illuminating quality.

Dr. King's *Wealth and Income* is a good book. Free from irrelevant and insignificant detail, it represents a courageous and painstaking attempt to get at the larger facts in the situation. If it errs, it is through an excess of courage. Dr. King forces his way through to a larger body of positive conclusions than any other writer in his field has reached. These conclusions are, of course, of various degrees of trustworthiness. They are accompanied by estimates of their dependability, in the form of statements that the error is "probably not greater" than a specified per cent. The use of these estimates of limits of error is altogether praiseworthy, but it is not always easy to see on what they are based, nor is it quite clear what is the precise meaning of the word "probably" in the phrase quoted.

It is to be regretted that Dr. King has not taken his readers more into his confidence in respect to these and other details of the methods he has used. He indicates his sources but does not explain all of his estimates. It is impossible to verify his results except by doing his work over again from the beginning. Dr. King explains in the preface that his book is intended for the "average reader" and purports to give only an "impressionistic picture of the subject under consideration." No doubt it is highly desirable that careful estimates like Dr. King's should be available for popular reference use, but this does not excuse the failure to open the methods used in reaching the estimates to the scrutiny of scholars. Dr. King should tell us more about his methods.

After a preliminary discussion of the concept of wealth, Dr. King passes to an account of the "changes in the social wealth of the American people." Here the subject of land supply is singled out for an admirable special treatment, covering urban, agricultural, and mineral lands. The discussion of the supply of "active capital" (instrumental

goods) involves a large element of guesswork, and I doubt whether it is worth while to attempt to run the figures for such items as buildings, machinery, and tools back to 1850. Nevertheless, the general impression given by these figures is probably not inaccurate. The results deserve much more confidence than do Dr. Nearing's estimates of the amount of income-yielding property. Where the two sets of figures are at all comparable, Dr. King's are invariably very much the smaller. But despite Dr. King's disclaimer of pretensions to accuracy, I cannot think that his use of the Bureau of Labor's wholesale-price index to eliminate the effect of the changing value of money from his figures for the per capita value of active capital in successive census years is justifiable. We know very little about the relation of changes in the value of fixed capital to changes in the general wholesale-price level. The results are enough to condemn the method. For example, the unadjusted per capita value of active capital is estimated at $188 for 1860 and $233 for 1870. When divided by the wholesale-price index (on a 1890–1899 base), these figures yield quotients of 133 for 1860 and 105 for 1870. Making generous allowance for the effects of the war on the southern states, the latter figure may be challenged as utterly inconsistent with the general industrial history of the decade from 1860 to 1870.

For his study of the distribution of wealth Dr. King relies upon the Massachusetts probate records, supplemented by the results of an investigation of similar records in six Wisconsin counties by Dr. M. O. Lorenz. Mortality statistics are used as a basis for estimating the number of estates not probated. By assuming a maximum limit of only $500 for the value of such estates, Dr. King, it is likely, somewhat exaggerates the inequalities in the distribution of wealth. A similar error of possibly more consequence is introduced by his failure to make any allowance for the much greater inequality of possessions among men at the close of life than among men with a normal age distribution.

The distribution of estates in Massachusetts in 1890 is shown to be very much like their distribution in 1860, and

there is a really striking similarity between the distribution of Wisconsin estates in 1900 and that of Massachusetts estates in 1860. Similar statistics for France (1909) show a close resemblance to the American figures, and this is also true for the distribution of wealth in Prussia, as shown by the property-tax assessments for 1908. In the United Kingdom, however, there is a much higher degree of wealth concentration. In these comparisons, as in his account of the distribution of incomes, Dr. King employs effectively the graphic device suggested by Dr. Lorenz, which proves to be an admirable instrument for the purpose. In studying the average value of the estates of different classes of the population at different periods, Dr. King again makes what seems to me an unwarranted use of the index number of wholesale prices.

Dr. King's most important chapter is concerned with the distribution of family incomes in the United States. This is the first attempt that has ever been made to estimate income distribution for the country as a whole. The results are likely to be widely quoted. In view of the paucity of materials, the attempt is a daring one, and the margin of error, of course, may be very wide. The sources used are the Wisconsin income tax returns, as analyzed by Professor H. M. Trumbower; certain estimates made at the time the federal income tax was framed; and the available statistics of wages, salaries, and workingmen's budgets. The federal income tax returns came too late to be available except in fragmentary form. "The methods followed in combining the figures," says Dr. King, "were mainly graphic and were too varied to describe here." But it appears that the Wisconsin returns were taken as fairly representative for the distribution of middle-class incomes, the estimates for the higher and lower incomes were pieced on, and the whole curve smoothed.

In using such methods the determination of the aggregate amount of income to be distributed is a matter of prime importance. Dr. King got his figures by estimating the value of the *annual product*, which he places (for 1910) at

$30,530,000,000.[1] This highly ingenious way of attacking the problem is thoroughly sound in principle. Except for a few minor differences, caused by such things as variations in the net balance of international debits and credits and in the amount of vendible goods carried over from one year to another, the aggregate annual product must be identical in value with the aggregate annual income.[2]

The average family income is put at $1,494. The mode is very nearly $700, and the median is a little less than $800. One-fifth of the families get nearly half of the income; 2 per cent of the families get one-fifth of the income; and the poorest two-thirds of the families get two-fifths of the income. These proportions are very much like those indicated for Prussia by the income-tax returns of 1910.

There is no way of telling how closely Dr. King has got to the truth of the matter. But the federal income tax returns for 1913 show that either his scheme of distribution is very much awry, or that his estimate of aggregate income is very much too large, or that the federal government got not more than three-fifths of the income it was entitled to under the law.

Dr. King proffers an estimate of the shares of the total value of the national income produced in each of the principal fields of industry and service[3] for each census year since 1850. The results are very interesting, especially when put in the form of per cents. But the element of guesswork in such estimates, large enough at the best, increases as one goes back to the earlier census years. Dr. King imputes a

[1] "To the value of the products of the extractive industries (agriculture, fishing, and mining) was added the value imparted to these products by the processes of manufacture, transportation, holding for sale, etc. The services of the government were assumed to be worth the amount paid for running the government. The estimated value of the direct services of persons and of residence property was added. To avoid duplication, building costs were deducted, since the income from buildings later appears as either business or residence 'rentals.' The remainder constitutes the national income." (P. 129.) Dr. King believes that error in his final result should not be greater than 10 per cent, altho the method described must have involved a large amount of conjecture.

[2] Income thus measured is not quite the same thing as "money income," nor does it take account of appreciation or depreciation in property values.

[3] Classified as government, commercial and professional services, manufacturing and light and power, transportation, fishing, mining, and agriculture.

maximum error of 25 per cent to his estimate of the aggregate national income in 1850. He seems to have more faith than I have in the accuracy of the statistics of industry and agriculture available for 1850, 1860, and 1870, as well as more confidence in the possibility of reconstructing the past on the basis of the various quantitative relations or proportions that hold true at the present time.

Even more daring is the attempt to apportion the national income in each of these census years among the different factors of production. There are a host of difficulties in such an undertaking, and Dr. King does not tell enough about his methods to enable one to say just how far his ingenuity has enabled him to surmount them. He has confidence in his figures for wages and salaries, and does not believe that those for rent are in error by more than 20 per cent. He does not attach much importance, however, to the line which he draws between interest and profits. Of particular interest is the stability and relatively small size of the share of the national income imputed to rent (never over 9 per cent).[1]

Dr. King reduces his results for wages, salaries, and profits to a per capita basis. Quite aside from the confessed inaccuracy of his estimates of aggregate profits, his figures for per capita profits seem to be void of meaning, by reason of the increasing proportion of profits that is distributed among corporation stockholders. These per capita figures for both wages and profits are marred by being translated into "purchasing power at the prices of 1890–1899" through division by an index of wholesale prices. The results are unfortunate, as is shown by their being wholly inconsistent with what Professor W. C. Mitchell's careful work has taught us to believe of the general trend of wages and profits in the period from 1860 to 1880.

For the period beginning with 1900, however, Dr. King constructs yearly indices of money wages that agree fairly

[1] Dr. Nearing may be chagrined to find that Dr. King finds about twice as much "property income" as he had been able to discover. But he may be consoled by the fact that Dr. King's estimates show that the proportion of the national income used to compensate "service" was much larger in 1910 than in 1850, while the proportion going to "property" has suffered a corresponding decrease.

well with the conclusions of Professor Mitchell and other investigators. These figures are modified in accordance with the showings of an index of the cost of living which Dr. King computes for the purpose. Dr. King, like other investigators, finds that real wages have decreased in recent years. But the decline seems not to have begun until after the panic of 1907, and to have been brought to at least a temporary halt in 1910. Dr. King puts rather more stress upon this apparent decline in real wages than our present knowledge of its extent and duration warrants. He is impressed by the cessation of the extraordinary advance made by labor in the thirty years ending with 1897, and he attaches too much weight to the advance in "average profits" which his figures indicate. In particular he uses the recent course of real wages as the text for a philippic against unrestricted immigration. One may easily concede that immigration has had something to do with the slackening of the rate of progress of the standard of living, and yet doubt that it is the sole or even the most important responsible factor. It is no new thing for wages to fail to keep pace with a rising price level. Dr. King's rejoinder is that a period of sixteen years "would seem long enough for wages to have almost completely adjusted themselves to the rising price level." And so it might be, — if prices had stopped rising.

A clear-headed command of economic principles, a rare degree of ingenuity in statistical construction, and a prodigious amount of toil, have gone into the making of this book. Dr. King is somewhat uncritical of the quality of his sources, and he sometimes pushes his statistical adventures a little too far into the wilderness. But he has made a large and important contribution to economic statistics. For some years, at least, his book should hold the supremacy in its field.

ALLYN A. YOUNG.

CORNELL UNIVERSITY.

NOTES AND MEMORANDA

FIVE MILL TAX ON MONEYS AND CREDITS IN IOWA

THE Thirty-Fourth General Assembly of Iowa in April, 1911, passed an act abolishing the general property tax as applied to moneys and credits, and providing in lieu thereof a flat rate of five mills on the dollar of actual valuation, such tax to be apportioned on the same pro rata basis as other taxes collected in a given taxing district. The basic provision of the present law relating to the taxation of moneys and credits is as follows:

> Moneys, credits and corporation shares or stocks, except as otherwise provided, cash, circulating notes of national banking associations, and United States legal tender notes, and other notes, and certificates of the United States payable on demand, and circulating or intended to circulate as currency, notes including those secured by mortgage, accounts, contracts for cash or labor, bills of exchange, judgments, choses in action, liens of any kind, securities, debentures, bonds other than those of the United States, annuities, and corporation shares or stocks not otherwise taxed in kind, shall be assessed, and, excepting shares of stock of national, state and savings banks and loan and trust companies, and moneyed capital as hereinafter defined, shall be taxed upon the uniform basis throughout the state of five mills on the dollar of actual valuation, same to be assessed and collected where the owner resides. The millage tax here provided for shall be in lieu of all other taxes upon moneys and credits and shall be levied by the board of supervisors, placed upon the tax list and collected by the county treasurer, and the amount collected in the various taxing districts of the state shall be divided between the various funds upon the same pro rata basis as other taxes collected in such taxing district are apportioned.[1]

Before presenting a statistical tabulation of the relative amount of moneys and credits listed for taxation under the old and new systems, it is essential that the reader have

[1] Supplement, Code of Iowa, 1913, section 1310.

clearly in mind: first, the exact meaning of the law itself, which can be understood only after making a critical study of the revenue code as a whole; and second, the real nature of fiscal administration in Iowa, which is so decentralized, cumbersome and inefficient as to render the successful operation of the flat rate system or any other tax law almost an impossibility. Moreover, a fairly definite knowledge of certain local conditions is also necessary if one is to present with any degree of scientific accuracy the subject under consideration.

In the absence of a careful study of these facts and conditions, the writer is of the opinion that the working of the five mill tax on moneys and credits has been somewhat misunderstood even by able students of taxation. At any rate questions asked and criticisms made at meetings of the National Tax Association would seem to indicate the desirability of presenting a brief review of the experience which Iowa has had with the flat rate system.

First of all it will be observed that moneys and credits include "corporation shares or stocks, except as otherwise provided." In fact the term credit as defined in the code has been construed by the courts to include shares of corporate stock.[1] One might quite naturally infer from these facts that shares of corporate stock formed a dignified fractional part of the amount of moneys and credits listed for taxation in Iowa.

A study of the revenue code, however, shows that the capital stock of telephone and telegraph companies, freight line and equipment companies, express companies, corporations engaged in merchandising and domestic corporations engaged in manufacturing is specifically exempted from taxation. Moreover, the "shares of stock of any corporation organized under the laws of this state, except those which are not organized for pecuniary profit, and except corporations otherwise provided for"[2] are listed at their real value after deducting the amount of capital actually invested in real

[1] Code of Iowa, 1897, section 1309; First National Bank v. City Council of Albia, 85 Iowa 736.

[2] Code of Iowa, 1897, section 1323.

estate, and taxed on the same basis as general property. Finally the capital stock of national, state, and savings banks, loan and trust companies, and moneyed capital in competition with banks, is listed at 80 per cent of its actual value and taxed on the same basis as general property in the same taxing district.[1]

Thus it appears that the capital stock of corporations in Iowa is for the most part exempt from taxation or is "otherwise provided" for by law, and is therefore not listed as moneys and credits for purposes of taxation. Indeed the only corporate stock not otherwise provided for is that held in foreign corporations, and the revenue code also stipulates that shares of stock in building and loan associations shall be classified as moneys and credits.[2] As the amount of stock in foreign corporations and building and loan associations listed for taxation as moneys and credits and therefore subject to the five mill tax is almost a negligible quantity, the importance of the phrase "otherwise provided" must be apparent.

In the second place the laws of Iowa provide that, in listing the amount of moneys and credits for taxation at the flat rate of five mills, the taxpayer may deduct from the "actual value thereof" the "gross amount of all debts in good faith owing by him." The language of the revenue code is as follows:

> In making up the amount of money or credits which any person is required to list, or to have listed or assessed, including actual value of any building and loan shares, he will be entitled to deduct from the actual value thereof the gross amount of all debts in good faith owing by him, but no acknowledgment of indebtedness not founded on actual consideration, and no such acknowledgment made for the purpose of being so deducted, shall be considered a debt within the intent of this section, and so much only of any liability of such person as security for another shall be deducted as he believes he will be compelled to pay on account of the inability of the principal debtor, and if there are other sureties able to contribute, then so much only as he in whose name the list is made will be bound to contribute; but no person will be entitled to any deduction on account of any deposit or security note given in aid of the organization of a mutual insurance company for the premiums of insurance, nor on account of any

[1] Laws of Iowa, 1911, p. 45.

[2] Code of Iowa, 1897, section 1920.

unpaid subscription to any institution, society, corporation or company; and no person shall be entitled to any deduction on account of any indebtedness contracted for the purchase of United States bonds or other non-taxable property.[1]

It has been assumed by some that this important section of the Iowa revenue code was repealed by the law of 1911, which provided a flat rate of five mills in lieu of the old personal property tax on moneys and credits. The truth is that under the old law bank stock and moneyed capital in competition with banks was frequently classified as moneys and credits, thus enjoying the privilege of deducting just debts within the limitations outlined by section 1311 of the code; whereas, under the flat rate law, bank stock (including moneyed capital in competition with banks) was placed in a separate class from two standpoints: first, being listed at 80 per cent of the actual value rather than the actual value thereof; and second, in being denied the right of deducting debts.[2]

Needless to say the right to deduct debts from the actual value of moneys and credits, a right which still exists under the flat rate system, would very materially reduce the amount of this class of property listed for taxation even with the most efficient plan of administration. In Iowa where a pioneer system of administration still prevails, this provision of law opens the door to an almost endless evasion of any form of taxation on moneys and credits. No judgment regarding the experience of this state with the flat rate tax can be considered scientific which fails to take due and proper account of the fact that all just debts may be deducted from the actual value of moneys and credits listed for taxation.

The third point to be considered along this line is the fact that another provision of the Iowa revenue code gives the county treasurer power to list omitted property and collect back taxes for a period of five years "together with 6 per cent interest thereon from the time the taxes would have become due and payable, had such property been listed and assessed."[3] Definite provision is also made for the enforce-

[1] Code of Iowa, 1897, section 1311.

[2] Laws of Iowa, 1911, p. 45.

[3] Code of Iowa, 1897, section 1374.

ment of this law by action in the court, and in case property has been "fraudulently withheld from assessment" a penalty of 50 per cent is added to the amount due.

Many taxpayers have feared the collection of heavy back taxes with accumulated interest in case they disclosed large amounts of moneys and credits under the flat rate law which had been concealed prior to 1911. When we consider that until the present year, 1916, a part of these back taxes would have been collected on the basis of the general property tax rather than the flat rate system, the ground of this fear becomes apparent. From the present date, of course, all back taxes collected under section 1374 of the Code of 1897 will be at the rate of five mills on the dollar of actual valuation and not at the local rate in a given taxing district.

Finally, it should be observed that, while the so-called tax ferret law was repealed in 1911,[1] many contracts were in force until 1912, and honest taxpayers felt that to list large amounts of moneys and credits heretofore concealed would simply mean a rich harvest for several firms of tax ferrets. To what extent fears of this character were justified the writer does not pretend to judge. This general subject, however, has been discussed with leading citizens from all parts of the state, and was considered by the Iowa Special Tax Commission in a number of its meetings. On the basis of direct information thus obtained at first hand, it can be safely stated that in presenting this phase of the problem, we are dealing with a factor of real importance in preventing a full and complete listing of moneys and credits. On this point there was no difference of opinion among the five members of the Special Tax Commission which made its report in 1912.

Closely related to the above considerations is the additional fact that, since the flat rate law was passed in 1911, there has been a constant effort made, especially in the rural districts, to bring about its repeal. This was true in the General Assembly of 1913 and again in 1915. Even at the present time a so-called State Tax League has been formed having a dual purpose: first, lower taxation by preventing

[1] Laws of Iowa, 1911, p. 48.

alleged waste in public expenditure; and second, a more or less determined opposition to the five mill tax on moneys and credits. In my judgment, the law is still in an experimental stage.

With so-called county tax leagues springing up in different sections of the state modeled after the larger organization, the writer anticipates a more serious opposition in the General Assembly of 1917 than was the case in either 1913 or 1915. While the law in all probability will not be repealed, the fact remains that the persistence of this agitation has been a strong factor in preventing a complete listing of moneys and credits. Indeed, the writer has talked with many conservative well informed citizens who believe that it is the most important factor in the problem under consideration.

Finally the existence of a pioneer system of tax administration, which in its main outlines is more than half a century old, and with only minor changes can be found in the Iowa Code of 1873, makes success impossible for any part of the revenue system that requires in its practical operation the exercise of discretion and judgment on the part of tax officials. A radical and complete change in the general plan of tax administration in Iowa is both desirable and necessary if success is desired for the flat rate law or any other part of our revenue system. To condemn the five mill tax because the listing of moneys and credits has not come up to the expectations justified by the experience of Maryland, Rhode Island, and other states is to confuse cause and effect.

The real criticism should be directed against the antiquated and cumbersome system of tax administration in Iowa, which has been briefly described as follows:

> At the basis of the fiscal pyramid, we have the work of more than two thousand local assessors and the correction of individual assessments by local review boards composed of more than six thousand officials. Add to this long list the county boards of supervisors, county treasurers and auditors, and the State Executive Council, and we have an army of assessment and taxation officials composed of about ten thousand men without any central supervision or control either in the county or state.[1]

[1] Iowa Special Tax Commission, 1912, p. 24.

Space does not permit a critical analysis of the whole system of fiscal administration, which in its present form is in my judgment the most important factor, if not more important than the other factors combined, in determining the success or failure of the flat rate tax.[1] Bearing these essential facts in mind the Special Tax Commission, in redrafting the revenue code, made definite provision for a more efficient administration of the flat rate law. The general plan of state and county supervision of local assessment carefully worked out in the revenue bill[2] would have greatly increased the efficiency of the whole revenue system of Iowa had it been adopted by the General Assembly. At any rate the experience of more than half the states in the Union confirms this statement.

With the facts and conditions above outlined before him, the reader is in a position to understand the listing of moneys and credits, corporation stock, bank stock, and other moneyed capital as set forth in the following table.

IOWA ASSESSMENT

Year	Actual Value of Moneys and Credits	Actual Value of Corporation Stock	80% of Actual Value of Bank Stock and Other Moneyed Capital.
1906	$152,599,090	$32,952,263	....
1907	160,855,167	31,836,762	....
1908	176,292,838	35,735,536	....
1908	184,359,222	34,445,024	....
1910	194,198,620	35,019,729	....
1911	170,131,195	....	$56,974,484
1912	188,773,772	4,702,325	62,887,044
1913	207,233,866	5,829,609	59,956,973
1914	250,218,178	5,845,207	63,301,915
1915	275,361,750	5,507,454	69,212,104

Prior to 1911 bank stock and other moneyed capital in competition with banks was classed as moneys and credits in many taxing districts, which explains the apparent decrease in the listing of moneys and credits for the year 1911. In other taxing districts, however, bank stock was listed as corporation stock under the old system. Whether there was

[1] See Brindley's History of Taxation in Iowa, vol. ii, chap. xxiii.

[2] Iowa Special Tax Commission, 1912, pp. 83–137.

a small increase or decrease in the listing of moneys and credits in 1911 cannot, therefore, be accurately determined. At any rate the amount for all practical purposes was about stationary. Since 1911, however, there has been a slow but constant increase, from $188,773,772 in 1912 to $250,218,178 in 1914 and $275,361,750 in 1915.

For reasons already outlined, the amount of corporate stock listed as moneys and credits is almost a negligible quantity. The small sum of $5,507,454 separately listed as corporation stock, the same not being "otherwise provided" for, is also instructive. To locate and place corporation stock, especially shares of stock held in foreign corporations, on the assessment roll, requires a modern system of administration, not a plan of assessment and equalization worked out during the period 1853–1873.

In conclusion, it may be safely alleged that the statistics presented, when judged with reference to actual facts and conditions, do not represent a criticism of the underlying principles of the flat rate tax. In my judgment, the rate should be reduced to three mills and the provision granting a deduction of debts from the actual value of moneys and credits repealed. With these changes made and an up-to-date plan of fiscal administration introduced, more revenue would no doubt be secured and in other respects better results attained.

JOHN E. BRINDLEY.

IOWA STATE COLLEGE,
AMES, IOWA.

DOES CONSERVATION INVOLVE COST?

IT is almost universally agreed that a very large degree of conservation of natural resources would be desirable were it not for the burden which it is assumed must be placed upon the present in order to benefit the future. The usual line of argument is, in substance, as follows. If we set aside forest reserves today, it makes lumber dear. If we insist that in

mining coal as little waste as possible be incurred, it means high-priced fuel. If we require that the low-grade ore in an iron mine be fully utilized in place of being wasted, it means dearer iron and steel products. In every case, the present generation is called upon to make a sacrifice in order to benefit the people of the future centuries. Conservation, then, resolves itself into a question of altruism; of the amount of sacrifice we are willing to undergo for the sake of generations yet unborn.

This line of argument appears at first practically unassailable. Upon closer analysis, however, it may be seen that it fails to take into consideration one of the essential factors — the laws governing the growth of population.

In any nation, population tends to expand through excess of births over deaths until a certain degree of tension or pressure upon the available natural resources is reached. When this degree of tension is attained, the birth rate and death rate become equal and population remains stationary so far as internal forces are concerned.

The degree of population density at which equilibrium for the native-born population is attained varies directly with the advancement in those phases of scientific knowledge which teach the ways and means of extracting the greatest annual product from the available natural resources and inversely with the number of comforts and luxuries included in the standard of living of the lower classes of the population. If the standards of comfort are firmly entrenched in the minds of the masses of the people, any exhaustion or diminution in the natural resources will be accompanied by a falling birth rate and a contraction of population corresponding to the decrease in the resources available.

Population equilibrium under varying circumstances is well illustrated by existing conditions in China, India, France, and the United States, in each of which countries the native population is or has been almost static. China apparently has few more inhabitants today, if any more, than a thousand years ago.[1] In her case, migration has, for centuries, played

[1] See article by Professor Walter F. Willcox in the American Economic Review, December, 1915, p. 744.

a small part and the standard of living has apparently been remarkably constant at a plane not far above the subsistence level. As a result, we find a dense population with a high birth rate kept in equilibrium by an equally high death rate.

The population of India, like that of China, probably remained stationary and almost on a subsistence level for many centuries. But, just as some new uplift of an ancient peneplain through which the rivers, having long since cut to base level, have flowed on lazily for ages, will once more transform the sluggish streams into dashing torrents, so the sudden introduction of European methods of agriculture and industry has enabled a larger number of people to subsist by aid of the same natural resources and, hence, during the last few decades, has given rise to a marked increase in numbers.

Before the present war, France had attained an approximate equality between births and deaths; but both the birth rate and the death rate were low, and, while the number of inhabitants per square mile was large, the pressure of population on resources was much less intense than in China. The scientific knowledge of the French people enabled them to utilize their resources in a way which enabled a rather dense population to turn out a per capita product large enough to permit of a moderately advanced standard of living.

The American Indians in 1492 had probably reached a state of equilibrium between numbers and resources; for, with their primitive methods, even a soil as wonderfully fertile as that of America would yield only a most scanty livelihood to a small number of persons. The improved methods of the Europeans revolutionized all this and enabled the same area to support an immensely larger population, even tho the new-comers possessed much higher standards of living. During the centuries necessary to occupy the unbroken wilderness, resources were so superabundant that American ideals of the comforts imperatively necessary were elevated far above the standards of living of the Pilgrim fathers, and these new ideals became firmly fixed in the mental fiber of the people of the United States. With these exceptionally high standards permeating the masses of the people, the

native white population has reached a static condition with a very low density or slight degree of pressure upon resources.

None the less, altho the native population is static, the number of inhabitants in the United States still continues to increase rapidly, both through actual immigration and through the fecundity of the more recent arrivals. This illustrates the fact that the balance between population and resources is dependent not merely upon the standards of living of the country itself, but upon the standards of surrounding nations from which immigrants may come freely. Unless restrictions are imposed upon immigration to this country, the final equilibrium is likely to be based upon the standards of living of East Europe or Asia Minor rather than upon those established by the descendants of the early settlers in America.

The important thing for the present discussion is that equilibrium will eventually be reached upon the basis of some definite standard of living, whether the standard be that of America or of Eastern Europe. American standards would result in a population for the United States of perhaps a hundred millions, or about our present numbers. Eastern European standards would perhaps give two hundred and fifty millions a few decades hence. Chinese or Hindoo standards would perhaps lead to an ultimate number of five hundred millions of people at a still later date.

Suppose now, that in 1789 the United States Government had adopted and carried out a fixed policy of closing to entry half of the mines, half of the forests, and half of the farm lands throughout its entire domain. What would have been the result? There is no reason to suppose that the development of the American standard of living would have been in any way affected. But with the resources open to exploitation so much more limited in quantity, the native population would have come to a standstill at an earlier date, with perhaps a total of fifty millions. With European migration unrestrained, equilibrium would be reached at perhaps a hundred and twenty-five millions — about half the population previously assumed under European standards. With

an unrestricted flow of people from Asia, the balance between population and resources would probably occur at a figure somewhere near two hundred and fifty millions, or half the number arrived at with all resources freely available.

In any case, the final results would presumably be that, after equilibrium was attained, the people would be living in almost the same circumstances as if the government had opened the entire area to development. The only difference would be that population would become stationary at an earlier date.

Considering cost in the sense of disutility — the only sense in which it has any meaning for present purposes — it is hard to see that the hypothetical conservation policy here assumed involved serious cost to anyone. Such cost as was incurred was due to restriction of population — to the pleasure loss resulting from rearing small rather than large families. It is doubtful, however, whether the extra numbers in a large family do not, on the average, cause as much sacrifice as pleasure. If this is true, the supposed conservation policy involved no cost whatever.

The same reasoning would apply to the setting aside by the government of resources unused at the present time. Such a policy would not involve cost or sacrifice, but merely a hastening of the day when population would become stationary. Even tho the resources conserved are now in the hands of private owners, the principle would in no wise be affected from the standpoint of the nation as a whole; tho it is undoubtedly true that the purchase of these resources by the government for purposes of conservation would bring about some changes in the wealth distribution among the families of the nation.

From the line of reasoning given above, it similarly follows that the reservation of great forest or game preserves, of national parks and playgrounds, or even of great private estates such as exist in England, burdens the mass of the people with no sacrifices except such as may be connected with population restriction. The opening up of such areas to cultivation would not enhance the public welfare, but would

merely take away the gratification now derived from the use of these lands as pleasure resorts and the enjoyment at present received from the scenic beauties of the uncultivated tracts.

It appears, then, that the ultimate test of the extent to which conservation should be carried turns not upon any question of cost to the present generation but upon that of military necessity. The more resources conserved, the less the ultimate population and the fewer the soldiers to be called upon in case of war. But wars nowadays are settled as much by abundant resources and wealth as by the number of men available for the army. The best militaristic policy is not necessarily that of gaining population by a lavish use of the gifts of nature. China and India have so overdrawn upon their natural resources that their poverty does not permit them to equip an efficient army. On the other hand, a nation might set its standards of living so high and conserve so many of its natural riches that its population would be too small for self-protection and its conserves would become the booty of less thrifty but more populous neighbors.

In settling upon the best conservation policy, therefore, both political and economic aims must be kept in mind. With the present national area and population, the people of the United States apparently have little to fear from foreign aggression, if the average wealth and prosperity of the inhabitants is maintained unimpaired. Granting this assumption, and assuming further that we were to shut off immigration, we might proceed with a rigorous conservation policy without fear of placing any considerable burden upon the shoulders of the present or the next generation and without danger of materially lowering our present standards of comfort.

WILLFORD I. KING.

UNIVERSITY OF WISCONSIN.

APPENDIX

STATISTICS ON TRADE UNIONS, 1910

I. — Membership of Trade Unions

II. — Extent of Organization

III. — Organization in Selected Occupations

TABLE I

MEMBERSHIP OF AMERICAN NATIONAL AND INTERNATIONAL TRADE UNIONS IN THE UNITED STATES AND CANADA; CLASSIFIED BY SEX, 1910

(Unless otherwise specified, the data in this table were obtained either from the proceedings or officers' reports or by correspondence with the central office of the union)

Name of Union	Total Membership	Male	Female	Membership in U.S.[3]
Actors	1,100[1]	1,100	....	1,100
Asbestos Work	500[1]	500	....	500
Bakery Work	19,004	19,004	....	18,830
Barbers	27,201	27,201	....	26,310
Billposters	1,400[1]	1,400	....	1,310
Blacksmiths	10,000[1]	10,000	....	9,000
Boilermakers	16,092	16,092	....	15,051
Bookbinders	7,184	3,413	3,771	6,956
Boot and Shoe Work	32,500[1]	27,000	5,500	30,727
Boot and Shoe Cutters	2,200	2,200	....	2,200
Box Makers	10,000	9,600	400	10,000
Brewery Work	45,497	44,947	550	44,392
Bricklayers	72,000	72,000	....	65,311
Brick Work	3,800[1]	3,800	....	3,800
Bridge Work	10,872	10,872	....	9,998
Broom Makers	600[1]	600	....	600
Brush Makers	200[1]	200	....	200
Building Laborers	6,444[2]	6,444	....	6,444
Butcher Work	1,975	1,975	....	1,975
Cap Makers	1,846	1,646	200	1,750
Carpenters, Am.	4,950	4,950	....	4,950
Carpenters, Utd.	200,712	200,712	....	195,499
Carriage Work	1,100[1]	1,100	....	1,100
Car Work	5,000[1]	5,000	....	5,000
Cement Work	9,000[1]	9,000	....	8,975
Cigarmakers	43,837	39,837	4,000	41,652
Commercial Telegraphers	1,000[1]	1,000	....	1,000
Composition Roofers	1,190	1,190	....	1,190
Compressed Air Work	600[1]	600	....	600
Coopers	4,375	4,375	....	4,346
Cuttermakers	300[1]	300	....	300
Diamond Work	310	310	....	310
Electrical Work (affiliated)	16,000[1]	16,000	....	15,990
Electrical Work	22,000	22,000	....	20,102
Elevator Constructors	2,100[1]	2,100	....	2,067
Engineers	3,860	3,860	....	3,108
Flint Glass Work	8,901	8,901	....	8,729
Flour Mill Employ	300[1]	300	....	300
Foundry Employ	700[1]	700	....	700

[1] Proceedings of the American Federation of Labor, 1910, p. 67.
[2] New York Labor Bulletin, No. 45, 1910, p. 405.
[3] The data in this column were obtained by subtracting from the total membership of each organization its Canadian membership. The Canadian membership of American trade unions is contained in the "Report on Labour Organization in Canada," Department of Labor, 1911, p. 90. As there was no Canadian report previous to 1911, the Canadian membership in 1911 was used for 1910, except where the Canadian membership in 1910 was obtained directly from the union.

Name of Union	Total Membership	Male	Female	Membership in U.S.
Fur Work	200[1]	200	....	200
Garment Work	54,200	34,200	20,000	52,665
Glass Bottle Blowers	10,000[1]	10,000	....	9,685
Glass Work	1,515	1,515	....	1,405
Glove Work	800	435	365	800
Government Employ	11,000	11,000	....	11,000
Granite Cutters	13,400[1]	13,400	....	13,113
Grinders	300[1]	300	....	300
Hatters	10,384	10,384	....	10,334
Hod Carriers	11,375	11,375	....	10,848
Horseshoers	7,200[1]	7,200	....	7,150
Hotel Employ	37,000	34,985	2,015	35,864
I.W.W. (Chicago)	9,137	7,137	2,000	9,137
I.W.W. (Detroit)	3,475	3,130	345	3,475
Iron, Steel, and Tin Work	8,257	8,257	....	8,257
Jewelry Work	400[1]	400	....	400
Knights of Labor[2]	....	....	....	....
Lace Operatives	800[1]	800	....	800
Ladies' Garment Work	25,999	14,877	11,122	25,999
Laundry Work	2,900[1]	900	2,000	2,860
Leather Work	800[1]	800	....	800
Leather Work. on Horse Goods	3,700[1]	3,700	....	3,620
Letter Carriers	26,034	26,034	....	26,034
Lithographers	1,906	1,906	....	1,780
Lithographic Press Feeders	900[1]	900	....	900
Lithographic Work	350	350	....	350
Locomotive Engineers	60,673	60,673	....	56,781
Locomotive Firemen	69,267	69,267	....	64,155
Longshoremen	20,800[1]	20,800	....	19,600
Loom Fixers	940	940	....	940
Machine Printers and Color Mixers	500[1]	500	....	500
Machine Textile Printers	374	374	....	374
Machinists	56,900[1]	56,900	....	51,900
Maintenance of Way Employ	8,700[1]	8,700	....	8,700
Marble Work	2,708[3]	2,708	....	2,458
Marine Engineers	9,900	9,900	....	9,900
Masters, Mates, and Pilots	6,000	6,000	....	6,000
Meat Cutters	4,500	4,500	....	4,460
Metal Polishers	10,000[1]	10,000	....	9,858
Metal Work	1,260	1,260	....	1,260
Mine Work., Utd.	231,392	231,392	....	226,528
Miners, West. Fed. of	37,187	37,187	....	31,991
Molders	50,000[1]	50,000	....	47,050
Musical and Theatrical Un.	2,000	1,850	150	2,000
Musicians	60,000	56,000	4,000	57,740
Painters	63,676[3]	63,676	....	61,618
Paper Makers	1,600[1]	1,576	24	1,400

[1] Proceedings of the American Federation of Labor, 1910, p. 67.
[2] Refuses to publish its membership as it is a secret organization.
[3] Proceedings of the Building Trades Department of the American Federation of Labor, 1911, p. 54.

Name of Union	Total Membership	Male	Female	Membership in U.S.
Paper Mill Work	700[1]	450	250	700
Pattern Makers	5,950	5,950	....	5,450
Pavers	1,500[1]	1,500	....	1,500
Paving Cutters	3,200[1]	3,200	....	3,070
Photo Engravers	3,577	3,574	3	3,446
Piano Work	3,606	3,606	....	3,606
Plasterers	15,200[1]	15,200	....	13,629
Plumbers	25,015	25,015	....	24,015
Post Office Clerks, Nat. Fed. of	1,400[1]	1,330	70	1,400
Post Office Clerks, Utd. Nat. Ass. of	21,000	20,500	500	21,000
Poster Artists	340	340	....	340
Potters	5,795	5,695	100	5,680
Powder Work	238	138	100	238
Print Cutters	400[1]	400	....	400
Printing Pressmen	21,420	19,920	1,500	20,620
Quarry Work	5,000[1]	5,000	....	4,900
Railroad Freight Handlers	4,700[1]	4,700	....	3,950
Railroad Signalmen	1,162	1,162	....	1,100
Railroad Station Agents	600	600	....	600
Railroad Station Employ	2,180	2,180	....	2,180
Railroad Telegraphers	20,000[1]	19,040	960	20,000
Railroad Trainmen	113,871	113,871	....	106,343
Railway Carmen	23,325	23,325	....	20,525
Railway Clerks	6,270	6,208	62	6,270
Railway Conductors	45,992	45,992	....	43,856
Retail Clerks	15,000[1]	12,900	2,100	15,000
Saw Mill Work	600[1]	600	....	600
Saw Smiths	300[1]	300	....	300
Seamen	16,000[1]	16,000	....	16,000
Sheet Metal Work	16,068[2]	16,068	....	15,068
Shingle Weavers	1,800[1]	1,800	....	1,800
Shipwrights	900[1]	900	....	886
Shoe Work, Utd.	4,636	4,336	300	4,636
Slate Roofers	500[1]	500	....	500
Slate Workers	1,400	1,400	....	1,400
Spinners	2,776	2,776	....	2,746
Stationary Firemen	8,100[1]	8,100	....	8,100
Steam Engineers	17,000	17,000	....	16,650
Steam Fitters	5,600[1]	5,600	....	5,600
Steam Shovelmen	1,300	1,300	....	1,300
Steel Plate Printers	1,300[1]	1,300	....	1,262
Steel Plate Transferrers	100[1]	100	....	100
Stereotypers	4,000[1]	4,000	....	3,863
Stonecutters	8,548[2]	8,548	....	7,248
Stonecutters, Nat. Soc. of	800	800	....	800
Stove Mounters	985	985	....	935
Straw Hatters	400	400	....	400

[1] Proceedings of the American Federation of Labor, 1910, p. 67.
[2] Proceedings of the Building Trades Department of the American Federation of Labor, 1911, p. 54.

Name of Union	Total Membership	Male	Female	Membership in U.S.
Street Railway Employ	36,700 [1]	36,700	....	33,773
Switchmen	7,500	7,500	....	7,400
Tailors	11,533	10,733	800	10,533
Teamsters	42,000	42,000	....	41,643
Textile Work	13,233	7,278	5,955	13,033
Theatrical Stage Employ	9,566	9,566	....	9,116
Tile Layers	1,808 [2]	1,808	....	1,702
Tin Plate Work	800 [1]	800	....	800
Tip Printers	200 [1]	200	....	200
Tobacco Work	4,100 [1]	1,640	2,460	3,940
Travelers' Goods Work	600 [1]	575	25	561
Tunnel Constructors	1,300 [1]	1,300	....	1,300
Typographical Un	47,848	47,227	621	45,462
Upholsterers	2,800 [1]	2,800	....	2,800
Watch Case Engravers	200 [1]	200	....	200
Weavers, Cloth	5,000	2,500	2,500	5,000
Weavers, Elastic Goring	100 [1]	100	....	100
Weavers, Wire	400 [1]	400	....	400
White Rats	8,000	6,000	2,000	8,000
Window Glass Snappers	1,800 [3]	1,800	....	1,800
Window Glass Work	7,000 [3]	7,000	....	7,000
Wood Carvers	1,200 [1]	1,200	....	1,170
Wood, Wire Lathers	5,791	5,791	....	5,391
Wood Work	3,200 [1]	3,200	....	3,200
Wool Sorters	1,600 [3]	1,600	....	1,600
Total	2,191,892	2,115,144	76,748	2,101,502

[1] Proceedings of the American Federation of Labor, 1910, p. 67.
[2] Proceedings of the Building Trades Department of the American Federation of Labor, 1911, p. 54.
[3] New York Labor Bulletin, No. 45, 1910, p. 405.

TABLE II

EXTENT OF ORGANIZATION AMONG PERSONS TEN YEARS OF AGE AND OVER ENGAGED IN EACH SPECIFIED OCCUPATION IN EACH INDUSTRY OR SERVICE GROUP; CLASSIFIED BY SEX: 1910

Name of Industry or Occupation	Number of Persons in Industry or Occupation		Number of Members of Trade Unions in Industry or Occupation		Distribution of Union Members among Different Organisations		Percentage Organized	
	Total	Male	Total	Male	Name of Organisation [1]	Membership	Total	Male
MINING	834,456	833,871	254,779	254,779	.....	...	30.5	30.6
Coal mines	640,581	640,176	226,228	226,228	I.W.W. (Chicago)	200	35.3	35.4
					Utd. Mine Work.	226,028	..	..
Copper, gold and silver, iron, lead and zinc, other specified and not specified mines	193,875	193,695	28,551	28,551	West. Fed. of Miners	28,551	14.7	14.7
QUARRYING	....	....	....	....	.....	...	7.3	7.3
Quarries	85,919	85,874	6,309	6,309	A.F. of L., local union	9	7.3	7.3
					Slate Work.	1,400		
					Quarry Work.	4,900		
PRODUCTION OF SALT, OIL AND NATURAL GAS	37,476	37,125	....	....	.....	...	..	..
Salt mines, wells and factories	4,299	3,962	....	....	.....	...	..	..
Oil wells and gas wells	33,177	33,163	....	....	.....	...	..	..
CHEMICAL AND ALLIED INDUSTRIES	73,585	57,953	268	168	.....	...	0.4	0.3
Fertilizer factories	10,525	10,422	....	....	.....	...	..	..
Paint factories	7,013	6,264	....	....	.....	...	..	..
Powder, cartridge, dynamite, fuse and fireworks factories	9,559	6,822	238	138	Powder Work.	238	2.5	2.0
Soap factories and other chemical factories	46,488	34,445	30	30	A.F. of L., local unions	30	0.0	0.0
CLAY, GLASS, AND STONE INDUSTRIES	309,341	297,284	63,416	63,318	.....	...	20.5	21.3
Brick, tile and terra cotta factories	98,547	97,164	3,800	3,800	Brick Work.	3,800	3.8	3.9

Glass factories	83,641	78,595	28,619	28,619	Flint Glass Work.	8,729	34.2	36.4
					Glass Bottle Blowers	9,685		
					Glass Work.	1,405		
					Window Glass Snappers	1,800		
					Window Glass Work.	7,000		
Lime, cement and gypsum factories	45,226	44,945	....	....	.....	...	..	..
Marble and stone yards	55,558	55,334	25,217	25,217	Granite Cutters	13,113	45.4	45.5
					Marble Work.	2,458		
					Stone Cutters, Nat. Soc.	800		
					Stone Cutters	8,356		
					Stone Cutters, Soc., N.Y.	200		
					A.F. of L., local unions	119		
					Sculptors & Carvers, N.Y.	171		
Potteries	26,369	21,246	5,780	5,682	Potters	5,680	21.9	26.7
					A.F. of L., local unions	100		
Clothing Industries	608,802	324,740	102,972	71,163	.....	...	16.9	21.9
Clothing, shirt, collars and cuff factories	538,663	291,883	91,838	60,304	Garment Work.	52,665	17.1	20.7
					Tailors	10,533		
					Ladies' Garment Work.	25,999		
					Cap Makers	1,466		
					I.W.W. (Detroit)	300		
					A.F. of L., local unions	875		
Corset factories	14,002	1,726	....	....	.....	...	..	..
Glove factories	20,307	5,880	800	435	Glove Work.	800	3.9	7.4
Hat factories (wool and felt)	35,920	25,260	10,334	10,334	Hatters	10,334	28.7	40.9
Food and Kindred Products	299,176	252,618	22,744	22,744	.....	...	7.6	9.0
Bakeries	105,599	94,028	18,410	18,410	Bakery Work.	18,410	17.4	19.6
Butter and cheese factories	16,558	15,896	....	....	.....	...	..	..
Candy factories	34,391	15,887	....	....	.....	...	..	..
Fish curing and packing	7,694	6,471	....	....	.....	...	..	..
Flour and grain mills	36,425	36,029	300	300	Flour Mill Employ.	300	0.8	0.8
Fruit and vegetable canning	10,011	5,858	....	....	.....	...	..	..
Slaughter and packing houses	61,417	57,548	3,859	3,859	Meat Cutters	1,784	6.3	6.7
					Butcher Work.	1,975		
					I.W.W. (Chicago)	100		
Sugar factories and refineries	10,890	10,565	175	175	A.F. of L., local unions	175	1.7	1.7
Other food factories	16,191	10,336	....	....	.....	...	..	..

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Name of Industry or Occupation	Number of Persons in Industry or Occupation		Number of Members of Trade Unions in Industry or Occupation		Distribution of Union Members among Different Organisations		Percentage Organised	
	Total	Male	Total	Male	Name of Organisation [1]	Membership	Total	Male
IRON AND STEEL INDUSTRIES	1,746,387	1,718,140	173,169	173,169	Molders	46,438	9.9	10.1
					Metal Polishers	6,423		
					Iron, Steel & Tin Work.	5,500		
					Carriage Work.	1,100		
					Car Work.	5,000		
					Railway Carmen	20,525		
					Shipwrights	886		
					Boilermakers	13,051		
					Metal Work.	1,260		
					Machinists	51,900		
					Wire Weavers	400		
					Blacksmiths	9,000		
					Stove Mounters	935		
					Foundry Employ.	700		
					Pattern Makers	5,450		
					Metal Spinners of N.Y.	140		
					Cutter Makers	300		
					I.W.W. (Detroit)	600		
					I.W.W. (Chicago)	300		
					A.F. of L., local unions	1,261		
LEATHER INDUSTRIES	293,035	224,368	42,644	37,121	.....	...	14.5	16.5
Harness and saddle factories	24,799	24,013	3,620	3,620	Lea. Work., Horse Goods	3,620	14.6	15.1
Leather belt, leather case, pocketbook and trunk factories	30,041	16,144	561	538	Travelers' Goods Work.	561	2.8	3.3
Shoe factories	193,474	131,709	37,663	32,163	Utd. Shoe Work.	4,636	19.5	24.4
					Boot and Shoe Work.	30,727		
					Boot and Shoe Cutters	2,200		
					Elastic Goring Weavers	100		
Tanneries	54,721	52,502	800	800	Leather Work.	800	1.4	1.5
LIQUOR AND BEVERAGE INDUSTRIES	73,475	71,068	49,665	49,078	.....	...	67.6	69.1
Breweries	55,413	54,555	49,209	48,622	Brewery Work.	49,209	88.8	89.1
Distilleries	7,912	6,980	210	210	Brewery Work.	210	2.6	3.0
Other liquor and beverage factories	10,150	9,533	246	246	A.F. of L., local unions	246	2.4	2.6

Other liquor and beverage factories.....	10,150	9,533	246	246	A.F. of L., local unions	246	2.4	2.6
LUMBER AND FURNITURE INDUSTRIES.....	597,174	577,992	63,934	63,534	.....	...	10.7	10.9
Box, furniture factories, saw and planing mills and other woodworking factories	567,132	549,941	60,228	59,828	Box Makers	10,000	10.6	10.9
					Saw Mill Work.	600		
					Saw Smiths	300		
					Upholsterers	2,800		
					Wood Carvers	1,170		
					Carpenters, Utd.	38,958		
					Shingle Weavers	1,800		
					Wood Work.	3,200		
					I.W.W. (Detroit)	200		
					I.W.W. (Chicago)	1,200		
Piano and organ factories.....	30,042	28,051	3,706	3,706	I.W.W. (Chicago)	100	12.3	13.2
					Piano Work.	3,606		
METAL INDUSTRIES (except Iron and Steel)	320,041	288,296	15,013	15,013	Molders	612	4.7	5.3
					Metal Polishers	5,435		
					West. Fed. of Miners	4,636		
					Diamond Work.	310		
					Jewelry Work.	400		
					Tin Plate Work.	800		
					Watch Case Engravers	200		
					Iron, Steel & Tin Work.	2,500		
					A.F. of L., local unions	120		
PAPER AND PULP INDUSTRIES.....	101,797	68,677	2,683	2,412	Ma. Printers & Color Mix.	500	2.6	3.5
					Paper Mill Work.	700		
					Papermakers	1,400		
					A.F. of L., local unions	83		
PRINTING AND BOOKBINDING.....	249,456	200,584	85,479	79,790	Typographical Un.	45,462	34.3	39.7
					Steel Plate Printers	1,262		
					Steel Plate Transferers	100		
					Stereotypers	3,863		
					Printing Pressmen	20,620		
					Poster Artists	340		
					Photo Engravers	3,446		
					Bookbinders	6,956		
					Lithographers	1,780		
					Litho. Press Feeders	900		
					Lithographic Work.	350		
					Print Cutters	400		

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Name of Industry or Occupation	Number of Persons in Industry or Occupation		Number of Members of Trade Unions in Industry or Occupation		Distribution of Union Members among Different Organisations		Percentage Organised	
	Total	Male	Total	Male	Name of Organisation [1]	Membership	Total	Male
TEXTILE INDUSTRIES	800,251	404,368	29,862	19,377	I.W.W. (Chicago)	4,300	3.7	4.8
					Textile Work.	13,033		
					Woolsorters	1,600		
					Machine Printers	374		
					Loom Fixers	940		
					Lace Operatives	800		
					Cloth Weavers	5,000		
					Spinners [Mass.	2,746		
					Brussels' Work., Auburn,	35		
					Sailmakers, Soc. of N.Y.	127		
					Warpers, Phila. [Mass.	134		
					Carpet Wea., Worcester,	350		
					I.W.W. (Detroit)	300		
					A.F. of L., local unions	123		
MISCELLANEOUS INDUSTRIES:	....	....	....	....	.....	...	..	..
Broom and brush factories	12,922	10,563	897	897	Broom Makers	600	6.9	8.5
					Brushmakers	200		
					Brushmakers of N.Y.	97		
Button factories	12,879	7,748	32	32	A.F. of L., local unions	32	0.2	0.4
Charcoal and coke works	23,294	23,259	500	500	Utd. Mine Work.	500	2.1	2.1
					A.F. of L., local unions	850		
Cigar and tobacco factories	170,904	93,702	46,742	40,453	Cigarmakers	41,652	27.3	43.2
					Tobacco Work.	3,940		
					I.W.W. (Detroit)	200		
					I.W.W. (Chicago)	100		
Electric light and power plants, electric supply factories, electricians and electrical engineers, telegraph and telephone linemen	252,883	239,743	36,092	36,092	Electrical Work. (affil.)	15,990	14.3	15.1
					Electrical Work.	20,102		
Gas works	22,783	22,723	605	605	A.F. of L., local unions	605	2.6	2.6
Oil refineries	14,653	14,513	....	....	.....	...	..	..
Rubber factories	45,864	34,059	50	50	A.F. of L., local unions	50	0.1	0.1

Rubber factories	45,894	34,059	50	50	A.F. of L., local unions	50	0.1	0.1
Straw factories	6,458	2,377	684	684	Straw Hatters	400	10.6	28.7
					Cap Makers	284		
Turpentine distilleries	7,806	7,839	....	....	.....	...	..	..
Other miscellaneous and not specified industries	323,534	239,128	....	....	.....	...	..	..
TRANSPORTATION	2,862,260	2,756,231	494,662	493,702	.....	...	17.3	17.9
Water transportation	204,680	203,826	59,098	59,098	Longshoremen	19,600	28.8	28.9
					Seamen	13,800		
					Masters, Mates & Pilots	6,000		
					Marine Engineers	9,900		
					Steam Engineers	6,660		
					Engineers	3,108		
					A.F. of L., local unions	30		
Construction and maintenance of streets, roads, sewers, and bridges	195,793	195,443	4,612	4,612	Pavers	1,500	2.3	2.3
					Paving Cutters	3,070		
					A.F. of L., local unions	42		
Electric and street railways	154,684	154,426	33,773	33,773	Street Railway Employ.	33,773	21.8	21.8
Teamsters	748,550	748,265	52,128	52,128	Teamsters	41,648	6.9	6.9
					Chicago Teamsters	10,000		
					Bakery Work.	420		
					A.F. of L., local unions	60		
Steam railroads	1,266,574	1,260,523	297,926	297,926	Locomotive Engineers	56,781	23.5	23.6
					Locomotive Firemen	64,155		
					Railway Conductors	43,856		
					Railroad Sta. Employ.	2,180		
					Railroad Trainmen	105,343		
					Railroad Station Agents	600		
					Railroad Freight Hand.	3,950		
					Railroad Signalmen	1,100		
					Maint. of Way Employ.	8,700		
					Switchmen	7,400		
					Tunnel Constructors	1,300		
					R.R. Bldg. Mechanics,	240		
					I.W.W. (Chicago) [Mass.	1,000		
					A.F. of L., local unions	321		
Express companies	27,738	27,689	....	....	.....	...	..	..
Post	82,455	81,276	26,034	26,034	Letter Carriers	26,034	31.5	32.0

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Name of Industry or Occupation	Number of Persons in Industry or Occupation		Number of Members of Trade Unions in Industry or Occupation		Distribution of Union Members among Different Organisations		Percentage Organised	
	Total	Male	Total	Male	Name of Organisation [1]	Membership	Total	Male
Telegraph and telephone	178,211	81,212	21,091	20,131	Commercial Telegraphers	1,000	11.8	24.8
					Railroad Telegraphers	20,000		
					A.F. of L., local unions	91		
Other and not specified transportation	3,575	3,571	....	....	.....	...	..	..
HAND TRADES	713,659	123,063	4,346	4,346	Coopers	4,346	0.6	3.5
BUILDING TRADES	2,444,395	2,425,652	396,674	396,674	Stonecutters	567	16.2	16.4
					Bricklayers	65,311		
					Bridge Work.	9,998		
					Carpenters, Utd.	156,541		
					Carpenters, Am.	4,950		
					Building Laborers	6,444		
					Cement Work.	8,975		
					Compressed Air Work.	600		
					Composition Roofers	1,190		
					Elevator Constructors	2,067		
					Asbestos Work.	500		
					Hod Carriers	10,848		
					Painters	61,618		
					Plasterers	13,629		
					Plumbers	24,015		
					Slate and Tile Roofers	500		
					Steam Fitters	5,600		
					Tile Layers	1,702		
					Wood, Wire Lathers	5,391		
					Sheet Metal Work.	15,068		
					I.W.W. (Detroit)	400		
					I.W.W. (Chicago) [N.Y.	150		
					Mosaic & Terrazzo Work.	105		
					A.F. of L., local unions	505		
STATIONARY ENGINEERS	215,053	215,043	9,990	9,990	Steam Engineers	9,990	4.6	4.6
STATIONARY FIREMEN	84,685	84,685	8,100	8,100	Stationary Firemen	8,100	9.5	9.5
TRADE	3,411,677	2,912,279	17,676	15,576	.....	...	0.5	0.5
Banking, brokerage, insurance, real estate	337,356	328,561	....	....	.....	...	..	..
Retail and wholesale dealers	1,346,077	1,178,049	....	....	.....	...	..	..

Other persons in trade	1,803,984	1,382,498	17,676	15,576	Retail Clerks Meat Cutters	15,000 2,676	0.9	1.1
Grain elevators, stockyards, warehouses and cold storage plants	24,260	23,171	....	....	.....	...	..	..
Public Service (not elsewhere classified)	441,180	435,653	11,843	11,843	A.F. of L., local unions Government Employ.	843 11,000	2.6	2.7
Professional Service	1,628,970	895,619	77,976	71,976	.....	...	4.8	8.0
Actors, professional showman, etc.	68,220	53,344	9,100	7,100	White Rats Actors	8,000 1,100	13.3	13.3
Artists, sculptors, teachers of art	65,879	45,486	....	....	.....	...	..	..
Clergymen, etc.	144,878	131,786	....	....	.....	...	..	..
Legal professions	122,149	120,806	....	....	.....	...	..	..
Literary professions	53,064	36,941	....	....	.....	...	..	..
Medical professions	293,990	201,037	....	....	.....	...	..	..
Musicians and teachers of music	139,310	54,832	59,640	55,640	Musicians Musical & Theatrical Un.	57,740 1,900	42.8	..
Scientific professions	108,596	106,356	....	....	.....	...	..	..
Teachers, professors, etc.	616,144	134,515	20	20	A.F. of L., local unions	20	0.0	0.0
Other professional pursuits and occupations connected with professional service	16,740	10,516	9,216	9,216	Theatrical Stage Employ. Musical & Theatrical Un.	9,116 100	55.1	87.6
Domestic and Personal Service	3,569,757	1,118,743	62,719	60,747	Barbers Hotel Employ. I.W.W. (Chicago) A.F. of L., local unions	26,310 35,864 150 395	1.7	5.4
Laundries	121,736	46,695	2,860	1,972	Laundry Work.	2,860	2.4	4.2
Agriculture, Forestry, and Animal Husbandry	12,640,734	10,833,248	2,262	2,262	Seamen (fishermen) A.F. of L., local unions	2,200 62	0.0	0.0
Proprietary, Official, and Supervisory Groups	980,012	935,116	....	....	.....	...	..	..
Clerical Groups	1,696,061	1,138,564	28,853	28,221	Utd. Nat. Ass. P.O. Clerks Railway Clerks Nat. Fed. of P.O. Clerks A.F. of L., local unions	21,000 6,270 1,400 183	1.7	2.5
Total	38,134,712	30,059,212	2,116,317	2,042,514	.....	...	5.5	6.8

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Notes to Table II

Unless otherwise indicated the figures in this table, giving the number of persons employed in an industry, are obtained by adding the number of persons employed in the fourth group in the census of "occupations peculiar to the industry." As explained in the discussion of this table, "teamsters" and "firemen" have been taken from this group. The following notes enumerate those occupations in the first three groups over which the union in the industry claims jurisdiction and which have, consequently, been added to the occupations of the fourth group.

Coal mines. — Blacksmiths, boilermakers, carpenters, stationary engineers, machinists, millwrights, drivers.

Copper, gold and silver, iron, lead and zinc, other specified and not specified mines. — Firemen, drivers.

Quarries. — Blacksmiths, carpenters, stationary engineers, drivers.

Brick, tile and terra cotta factories. — Teamsters, firemen.

Marble and stone yards. — Foremen and overseers, blacksmiths, masons and monument setters, tool sharpeners.

Potteries. — Firemen.

Clothing, shirt, collar and cuff factories. — This item was obtained by combining the three classifications: (1) clothing factories (suits, coats, cloaks, and overalls); (2) clothing factories (except suits, coats, cloaks, and overalls); and (3) shirt, collar, and cuff factories. To the sum of their fourth groups were added "shipping clerks" in (1) and (2).

Slaughter and packing houses. — Weighers.

Iron and steel industries. — This includes all workers in the fourth group of the various divisions of the iron and steel industry as found in Table VI of the Census of Occupations. To these have been added the total number of boilermakers, machinists, and millwrights and blacksmiths in the United States in 1910 (Census of Occupations, 1910, Table I, pp. 91, 92) less those blacksmiths, boilermakers, and machinists who have been added to the fourth group in other industries. There are included, also, the following occupations in the first three groups of various sections of the iron and steel industry: Automobile factories — shipping clerks, designers, draftsmen, blacksmiths, cabinetmakers, carpenters, electricians and electrical engineers, mechanical engineers, stationary engineers, locksmiths, machinists, mechanics, millwrights, painters, tinners, toolmakers, wheelwrights, firemen. Carriage and wagon factories — shipping clerks, designers and draftsmen, black-

smiths, cabinetmakers, carpenters, electricians and electrical engineers, stationary engineers, machinists, mechanics, millwrights, painters, tinners, toolmakers, wheelwrights, wood carvers, firemen. Car and railroad shops — cabinetmakers, carpenters, electricians and electrical engineers, painters, plumbers, tinners, wheelwrights, wood carvers. Ship and boat building — foremen and overseers, boilermakers, carpenters and shipwrights, mechanics.

Harness and saddle factories. — Machinists, mechanics.

Leather belt, leather case, pocketbook and trunk factories. — (1) Leather belt, leather case and pocketbook factories — engravers, mechanics, painters. (2) Trunk factories — mechanics, painters.

Breweries. — Stationary engineers, firemen, teamsters, coopers.

Distilleries. — Stationary engineers, firemen, coopers, teamsters.

Box, furniture factories, saw and planing mills, and other woodworking factories. — Includes " cabinetmakers " in each of the above divisions of the lumber industry.

Piano and organ factories. — Foremen and overseers, cabinetmakers.

Metal industries. — This represents the sum of the fourth groups in the following industries — brass mills, clock and watch factories, copper factories, gold and silver factories, jewelry factories, lead and zinc factories, tinplate, tinware and enamel ware factories, other metal factories, and not specified metal factories.

Paper and pulp industries. — This represents the sum of the fourth groups in the following industries — box factories (paper), blank book, envelope, tag, paper bag factories, and paper and pulp mills. " Engravers " in blank book factories have also been added.

Printing and bookbinding. — Proof readers, engravers, machinists.

Textile industries. — This represents the sum of the fourth groups of all of the subdivisions of the textile industry and the " machinists and loomfixers " in lace and embroidery mills and in linen mills.

Charcoal and coke works. — Blacksmiths, boilermakers, carpenters, firemen, teamsters.

Cigar and tobacco factories. — Shipping clerks, weighers.

Electric light and power plants. — This includes the sum of the fourth groups in electric light and power plants and electric supply factories, the total number of electricians and electrical engineers in the United States in 1910 (Census, Table I, p. 91), proper deductions being made for those included in other industries, and telegraph and telephone linemen (Census, Table VI, p. 418).

Water transportation. — Carpenters, firemen, electricians, engineers (ship or boat).

Teamsters. — Includes carriage and hack drivers, chauffeurs, draymen, teamsters and expressmen, hostlers and stable hands (Census, Table I, p. 92), deliverymen in " Trade " (Table I, p. 93) and teamsters in " Forestry " (Census, Table VI, p. 302). From this table have been

deducted the teamsters included, through the jurisdictional claims of various unions, in other industries.

Steam railroads. — Foremen and overseers, blacksmiths, carpenters, masons, painters, plumbers, tinners, train dispatchers, freight agents, ticket and station agents, miscellaneous and not specified agents, baggagemen, firemen.

Telegraph and telephone. — Telegraph and telephone linemen have been subtracted from the fourth group.

Hand trades. — Includes total number of coopers in the country, less those placed in other industries (see Census, Table XV, p. 55 for the number of coopers), dressmakers (not in factory), dressmakers' apprentices, jewelers (not dealers), milliners and millinery dealers, milliners' apprentices, piano and organ tuners (not in factory), seamstresses (not in factory), shoemakers (not in factory), weavers (blankets, not in factory), weavers (carpets, not in factory). See Census, Table VI, p. 312.

Building trades. — Includes the following occupations: carpenters and joiners, masons, painters, glaziers, and varnishers, paper hangers, plasterers, plumbers and gas and steam fitters, roofers and slaters, structural iron workers, tinsmiths and coppersmiths, laborers (building and not specified). The number of carpenters and joiners, masons, painters, glaziers, varnishers, paperhangers, plasterers, plumbers, gas and steam fitters, roofers and slaters were taken from Table XV of the Census of Occupations (p. 55), showing the total number of persons employed in these occupations throughout the whole of industry in 1910; the number of tinsmiths and coppersmiths from Table I (p. 92), and the number of structural iron workers and laborers (building and not specified) from Table VI (p. 312). In every case, however, the necessary deductions were made for the number in the occupation which had already been placed in another industry.

Stationary engineers. — Includes the total number of engineers in the country (Census, Table I, p. 91), less those included in other industries. (There is an organisation of stationary engineers called the National Association of Stationary Engineers, which had in 1910 a membership of 19,000; this organisation, however, does not consider itself to be a trade union and holds it contrary to its policy to interfere in any way between its members and their employers in regard to wages and to be used for the "furtherance of strikes." The association was, therefore, not included in any of the tables in this study.)

Stationary firemen. — Includes "firemen (except locomotive and fire department)"; see Census, Table I, p. 91. Allowance is made for stationary firemen already included in different industries.

Banking, brokerage, insurance, real estate. — The clerical workers have been deducted from the total number of persons employed in these divisions of trade.

Other persons in trade. — Includes "clerks in stores"; proprietary and clerical groups, firemen, deliverymen, stationary engineers, and machinists are deducted.

Public service. — Clerical occupations, stationary firemen, teamsters, machinists, stationary engineers, and machinists have been subtracted from the total number of persons employed in public service (not elsewhere classified). See Census, Table VI, p. 426.

Other professional pursuits. — Includes "other professional pursuits," physicians' and surgeons' attendants, ticket sellers (theater), stage hands and circus helpers, theater ushers.

Domestic and personal service. — Persons employed in "occupations connected with domestic and personal service" and "firemen" have been subtracted from the total number of persons employed in domestic and personal service.

Laundries. — Includes mechanics, drivers, deliverymen.

Agriculture, forestry and animal husbandry. — Clerical groups, blacksmiths, stationary engineers, machinists, and teamsters have been subtracted from the total number of persons employed in agriculture, forestry and animal husbandry.

Proprietary, official, and supervisory groups. — This represents the sum total of all similar groups in the industries given in Table VI of the Census of Occupations, necessary deductions being made for those members of the proprietary groups who were in several cases put into the industry in question.

Clerical group. — This represents the sum total of all similar groups in the industries given in Table VI of the Census of Occupations, correction being made as in the case of the proprietary groups.

TABLE III

EXTENT OF ORGANIZATION AMONG PERSONS TEN YEARS OF AGE AND OVER ENGAGED IN CERTAIN SELECTED OCCUPATIONS: 1910

Occupation	Number of Persons in Occupation		Number of Members of Trade Unions in Occupation		Distribution of Union Members among Different Organizations[1]		Percentage Organized	
	Total	Male	Total	Male	Name of Organization	Membership	Total	Male
Actors and showmen	48,393	35,293	9,100	7,100	Actors	1,100	18.8	20.1
					White Rats	8,000		
Bakers	117,141	105,898	18,830	18,830	Bakery Work.	18,830	16.1	17.7
Barbers	172,946	172,946	26,310	26,310	Barbers	26,310	15.2	15.2
Bartenders	101,234	100,984	25,601	25,601	Hotel Employ.	25,601	25.3	25.4
Blacksmiths, forgemen, and hammermen	240,519	240,488	16,150	16,150	Blacksmiths	9,000	6.7	6.7
					Horseshoers	7,150		
Bookbinders	39,270	18,179	6,956	3,305	Bookbinders	6,956	17.7	18.2
Brakemen	92,111	92,111	50,350	50,350	Railroad Trainmen	49,450	54.7	54.7
					Locomotive Firemen	900		
Brick and stone masons	169,402	169,387	66,179	66,179	Bricklayers	63,678	39.1	39.1
					Tile Layers	1,702		
					Stonecutters [N.Y.	567		
					Mosaic & Terrazzo Work.	105		
					A.F. of L., local unions	127		
Brick, tile and terra cotta workers	98,547	97,164	3,800	3,800	Brick Work.	3,800	3.8	3.9
Carders, combers and lappers	23,956	18,050	1,350	909	Carders	1,325	5.6	5.0
					Card Machine Operators	25		
Carpenters and joiners	817,120	817,082	169,820	169,820	Carpenters, Utd.	156,541	20.8	20.8
					Wood, Wire Lathers	5,391		
					Am. Soc. of Carpenters	4,950		
					Railway Carmen	2,052		
					Shipwrights	886		

Compositors, linotypers, and typesetters	127,589	113,538	44,522	43,956	Typographical Un.	44,522	34.9	38.8
Cooks	450,440	117,004	1,939	1,939	Hotel Employ.	1,939	0.4	1.6
Coopers	25,299	25,292	4,346	4,346	Coopers	4,346	17.2	17.2
Electrotypers and stereotypers	4,368	4,268	3,863	3,863	Stereotypers	3,863	88.4	90.5
Glove workers	12,343	4,266	800	435	Glove Work.	800	6.5	10.2
Locomotive engineers	96,229	96,229	71,401	71,401	Locomotive Engineers	56,781	74.2	74.2
					Locomotive Firemen	14,520		
					Railroad Trainmen	100		
Locomotive firemen	76,381	76,381	27,938	27,938	Locomotive Firemen	27,763	36.6	36.6
					Railroad Trainmen	175		
Loomfixers	13,254	13,254	3,020	3,020	Loomfixers	940	22.8	22.8
					Textile Work.	2,080		
Machinists and millwrights	478,786	478,713	53,160	53,160	Machinists	51,900	11.1	11.1
					Metal Work.	1,260		
Mail carriers	80,678	79,667	26,034	26,034	Letter Carriers	26,034	32.3	32.5
Metal polishers	55,983	52,910	8,895	8,895	Metal Polishers	8,895	15.9	16.8
Molders, founders, casters (metal), and core-makers	139,215	137,262	47,050	47,050	Molders	47,050	33.9	34.3
Musicians and teachers of music	139,310	54,832	50,640	55,640	Musicians	57,740	..	..
					Musical & Theatrical Un.	1,900		
Painters, glaziers, varnishers, enamelers, and paperhangers	362,932	350,594	63,800	63,800	Painters	61,518	17.6	17.7
					Railway Carmen	2,052		
					A.F. of L., local unions	130		
Pattern makers	14,869	14,775	5,655	5,655	Pattern Makers	5,450	38.0	38.0
					Railway Carmen	205		
Plasterers	47,682	47,676	15,262	15,262	Plasterers	13,629	32.0	32.0
					Bricklayers	1,633		
Plumbers and gas and steam fitters	148,304	148,304	30,641	30,641	Plumbers	24,015	20.7	20.7
					Steam Fitters	5,600		
					Railway Carmen	1,026		
Potters	15,591	13,536	5,680	5,582	Potters	5,680	36.4	41.2
Printers (textile)	2,250	2,057	374	374	Machine Printers	374	16.6	18.2
Railway conductors	65,604	65,604	57,056	57,056	Railway Conductors	43,856	86.9	86.9
					Railroad Trainmen	13,000		
					Locomotive firemen	200		

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Occupation	Number of Persons in Occupation		Number of Members of Trade Unions in Occupation		Distribution of Union Members among Different Organisations[1]		Percentage Organized	
	Total	Male	Total	Male	Name of Organization	Membership	Total	Male
Retail clerks	1,264,421	902,340	15,000	12,900	Retail Clerks	15,000	1.2	1.4
Spinners	74,059	27,785	5,126	5,126	Spinners	2,746	6.9	18.5
					Textile Work.	2,380		
Stonecutters	35,731	35,726	24,694	24,694	Granite Cutters	13,235	69.1	69.1
					Stonecutters	7,830		
					Marble Workers	2,458		
					Nat. Soc. of Stonecutters	800		
					Sculptors & Carvers, N.Y.	171		
					Stonecutters' Soc. of N.Y.	200		
Switchmen, flagmen, and gatemen	73,419	73,367	14,275	14,275	Switchmen	7,400	19.4	19.4
					Railroad Signalmen	1,100		
					Railroad Trainmen	5,400		
					Locomotive Firemen	375		
Teamsters	782,637	782,338	68,726	68,726	Teamsters	41,648	8.8	8.8
					Brewery Work.	16,448		
					Teamsters of Chicago	10,000		
					Bakery Work.	420		
					Laundry Work.	150		
					A.F. of L., local unions	60		
Tinsmiths, coppersmiths, and solderers	62,621	61,774	16,530	16,530	Sheet Metal Work.	16,530	26.4	26.7
Upholsterers and mattress makers	24,347	22,130	3,005	3,005	Upholsterers	2,800	12.3	13.5
					Railway Carmen	205		
Waiters	188,293	102,495	7,592	5,640	Hotel Employ.	7,592	4.0	5.5
Wood carvers	5,315	5,257	1,170	1,170	Wood Carvers	1,170	22.0	22.2
Woolsorters and graders	3,576	3,102	1,600	1,600	Woolsorters	1,600	44.7	51.6

[1] Unless otherwise indicated the unions given in this column are national or international unions.

Notes to Table III

The term "occupation" is used here in a somewhat wider sense than ordinarily to include certain subdivisions of a trade, each of which in the census terminology is regarded as a distinct occupation. Thus, the occupation of "bookbinders," given in Table III, is in reality composed of the thirteen subdivisions of the trade of bookbinding enumerated in the Census of Occupations. The figures indicating the number of persons employed in an occupation or trade were taken, unless otherwise specified, from Table I (United States Census of Occupations, 1910, p. 91).

Actors and showmen. — See Census, Table VI, p. 428. The Actors' National Protective Association claimed jurisdiction over "actors and actresses" and the "White Rats" over "actor, performer and entertainer in the amusement world." As the "Actors'" union went out of existence in 1911 and as the "White Rats" did not reply to several inquiries for a more detailed statement of their jurisdictional claims than that given in their constitution, the census classifications of "actors" and "showmen" were taken as affording the best basis for calculating the extent of organization among that class of persons who would be generally designated as actors.

Bakers. — This represents the sum of the number of persons employed in the following occupations in bakeries (Census, Table VI, p. 328): apprentices, bakers, deliverymen and teamsters, helpers, labelers, laborers, mixers, packers, wrappers, other specified occupations, not specified occupations.

Barbers. — The Census (Table VI, p. 430) combines in one group barbers and hairdressers. On the assumption that practically all hairdressers are female and that practically all barbers are male, the data in this table representing the total number of barbers were obtained by deducting from the total number of persons employed as barbers and hairdressers the females in the group. The percentage of organisation here given probably does not indicate the actual strength of the Barbers' Union, as the census includes in this group both employing and employed barbers, whereas the union excludes from membership employers who employ one or more journeymen barbers.

Blacksmiths. — The Census classifies horseshoers under blacksmiths. This classification also includes employer blacksmiths. The International Brotherhood of Blacksmiths and Helpers, however, admits into the union blacksmiths "conducting a blacksmith shop and employing not to exceed three blacksmiths."

Bookbinders. — Includes the following occupations in "printing and bookbinding" (Census, Table VI, p. 378): bookbinders, embossers, gilders, stampers, finishers, folders, numberers, rulers, cutters, gatherers, gold layers, pasters, sewers and sewing machine operators; and binders and rulers in "blank book" factories (Census, p. 376).

Brakemen. — See Census, Table VI, p. 414. Percentage of organization here calculated is probably too high because "the number of railroad brakemen is entirely too small as compared with the number of locomotive engineers and firemen. This probably is due to the return of brakemen under certain general designations." (Census, p. 22.)

Brick, tile and terra cotta workers. — Represents the sum of all of the occupations in the fourth group of "occupations peculiar to the industry," including "firemen" and "teamsters." (Census, Table VI, p. 318.)

Carders. — The Amalgamated Carders' Union and the Card Machine Operators' Union are part of the United Textile Workers and their membership is included in that of the latter organization. These unions are, therefore, not to be found in Table I.

Carpenters and joiners. — From an examination of the classification of carpenters and joiners followed by the Census of Occupations (Classified Index to Occupations, Bureau of the Census, 1910, p. 288), it seems that lathers are included in the general group of carpenters. For this reason the membership of the Wood, Wire and Metal Lathers' Union has been here added to the carpenters who are members of other unions.

Compositors. — The membership of the International Typographical Union includes "mailers" who are classified in the Census in another group. The mailers in the union in 1910 have, therefore, been deducted from the American membership of the union.

Cooks. — The percentage of organization is here too low because of the inclusion in the total number of cooks of a large number who are employed in private homes and whom the union makes no effort to organize, since it restricts its activities to the organization of hotel and restaurant employees.

Coopers. — The percentage of organization is too low as there are a number of coopers in the Brewery Workers' Union. It was impossible, however, to obtain from the Brewery Workers' Union the number of coopers in that organization.

Glove workers. — Includes apprentices, cutters, layers-off, pressers, sewers and sewing machine operators, and turners. (Census, Table VI, p. 326.)

Locomotive engineers and firemen. — Extent of organization is probably underestimated in both cases, because the total number of locomotive engineers and locomotive firemen is too great. "The large number of locomotive engineers and of locomotive firemen reported for 1910 indicates that, even after such corrections as could be made, some

stationary engineers are included with the locomotive engineers and some other firemen are included with the locomotive firemen." (Census, p. 22.) President W. S. Carter of the Brotherhood of Locomotive Firemen and Enginemen writes, in response to an inquiry, that there is an error of considerable magnitude in the census figures for locomotive engineers and locomotive firemen in that there are probably more firemen than engineers employed on railroads. This is due to the fact that, because of the greater physical exhaustion of the work of a fireman, "engineers can make 'more mileage' than firemen"; and, consequently, a larger proportion of firemen is required. This opinion is supported by the reports of the Interstate Commerce Commission which, not including returns for switching and terminal companies, reports 64,691 enginemen and 68,321 firemen employed on railroads in the United States in 1910. (Twenty-Fourth Annual Report on the Statistics of Railways in the United States, p. 27.) In interpreting the percentages of organization in the various occupations in the steam transportation industry, it must be remembered that there is a considerable duplication in membership which raises somewhat the percentage of organization. Thus, a "number of engineers who are members of the Brotherhood of Locomotive Firemen and Enginemen and join the Brotherhood of Locomotive Engineers retain their membership in both organizations." Similarly many conductors are at the same time members of the Order of Railway Conductors and of the Brotherhood of Railroad Trainmen. It is, however, impossible to collect data upon which to base the proper corrections.

Metal Polishers. — Includes filers, grinders, buffers and polishers (Census, Table I, p. 91), and platers, the total of which was obtained by adding up the platers in the various iron and steel and metal industries. The union membership was obtained by subtracting from the total membership the number of brass and silver workers not employed in any of the above occupations.

Molders. — The number of coremakers was obtained by adding up the coremakers in each industry. It was necessary to include coremakers with molders because they are admitted into the International Molders' Union and it was impossible to break up the membership of that union into molders and coremakers.

Musicians. — Male musicians show an organization of over 100 per cent. This is due to the fact that many persons, to whom their work as musicians is only a subsidiary occupation and who report themselves to the census enumerators as employed in other occupations, are members of the musicians' unions. Thus many barbers and grocers, who are enumerated in the Census in those occupations, play in orchestras at night and are included in the membership figures of the Musicians' Union. The composition of the Musicians' Union, therefore, accounts for the apparently anomalous data in this table which indicate a larger

number of persons in the Musicians' Union than there are musicians in this country.

Pattern makers. — This represents the total number of pattern makers in iron and steel industries, metal industries (other than iron and steel), electric supply factories, not specified metal industries, and steam railroads.

Potters. — Includes apprentices, dippers, dishmakers, finishers, firemen, jiggermen and jollymen, kilnmen, packers, potters not specified, pressers and molders, saggermakers, turners, other and not specified occupations. (Census, Table VI, p. 322.)

Printers (textile). — Obtained by adding up the printers in the various textile industries.

Retail clerks. — Represents "clerks in stores" and "salesmen and saleswomen in stores."

Switchmen. — Census, Table VI, p. 416. In the "Classified Index to Occupations" (Bureau of the Census, 1910, p. 326), which served as a basis for the classifications used in the Census of Occupations of 1910, switchmen, gatemen, flagmen, and signalmen are grouped together. It is assumed, therefore, that in the Census the same grouping is followed and the signalmen are classified with switchmen, gatemen, and flagmen.

Teamsters. — Includes carriage and hack drivers, chauffeurs, draymen, teamsters and expressmen, hostlers and stable hands, and deliverymen in trade. The percentage of organization among teamsters is probably higher than the figures indicate, first because the Teamsters' Union excludes employing teamsters and second, because there are many organized teamsters in other unions, such as the United Mine Workers, whose number it was not possible to ascertain.

Tinsmiths. — The number of solderers was obtained by adding the number of each industry. It was necessary to adopt this grouping because the Sheet Metal Workers' Union was unable to classify its membership into tinsmiths, coppersmiths, and solderers.

Upholsterers. — The number of mattress makers is found in Table VI, p. 406. This total for mattress makers does not, however, include all operatives, "since such occupations as apprentice and machine hand, are reported under their own respective titles."

Woodcarvers. — Total was obtained by adding the number of wood carvers in each industry.

Woolsorters and graders. — Represents the sum of persons employed in these occupations in the various textile industries.

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